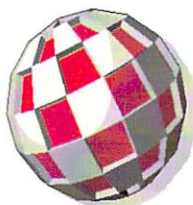
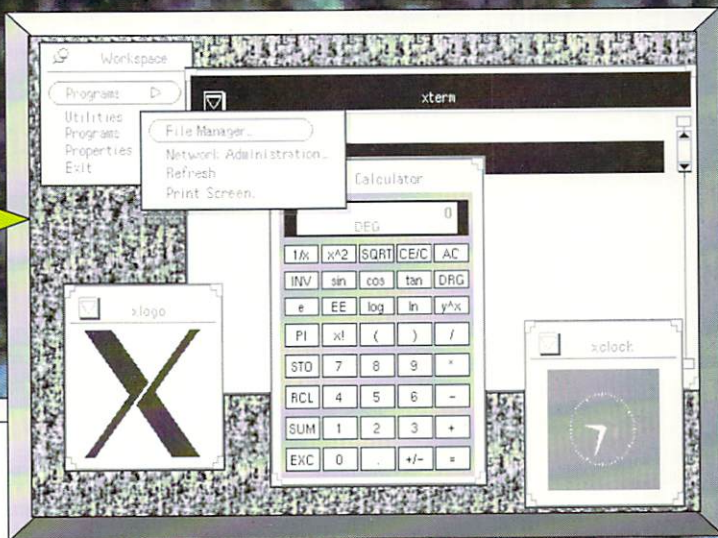


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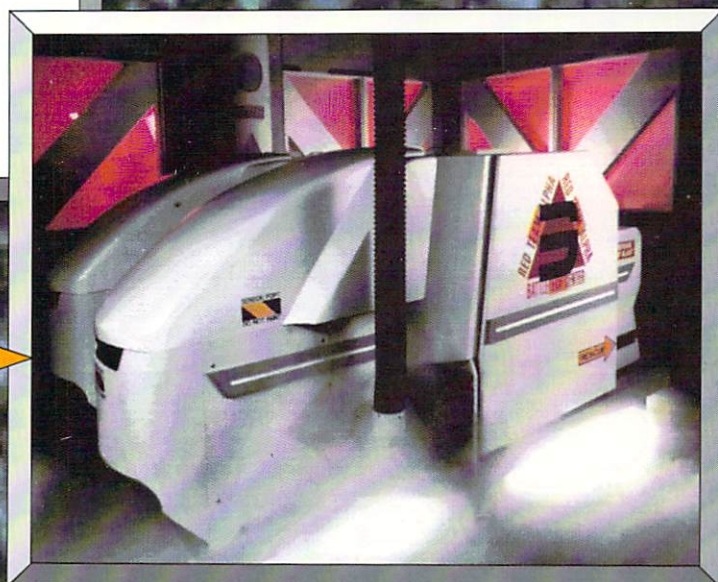


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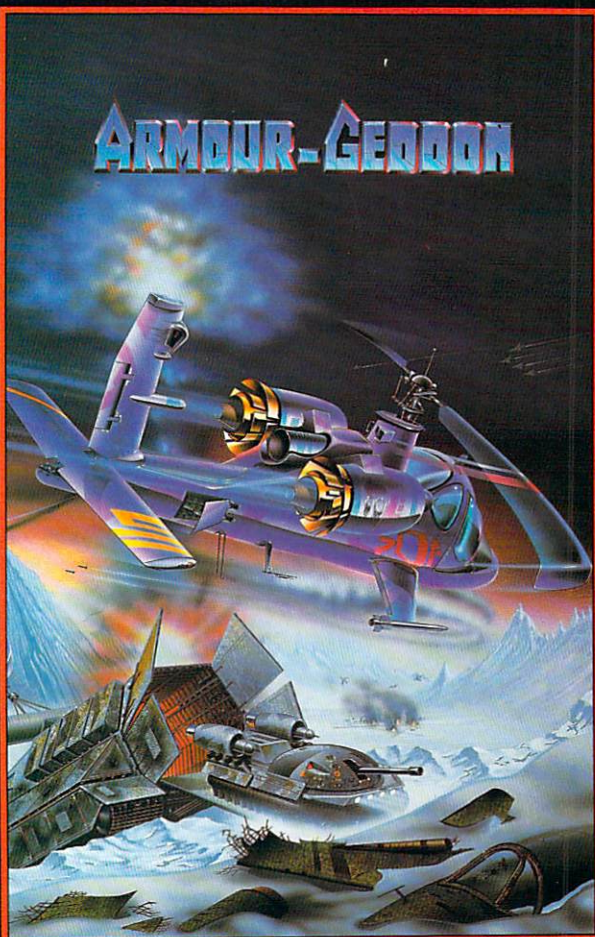
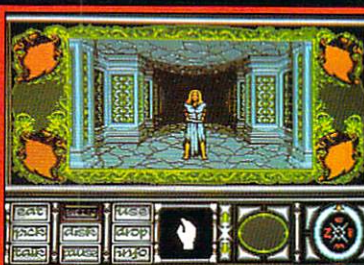
Lost and alone in a dangerous and alien world you must discover where you are, how you got there . . . and how you're going to get out!

In a frantic search of the unfamiliar land you explore aMAZEing forests, mines and underground complexes collecting objects and interacting with indigenous creatures.

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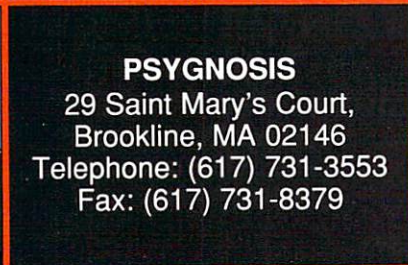
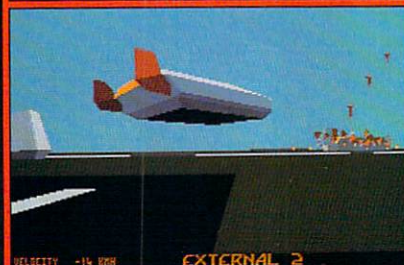
You select and control up to six diverse hi-tech vehicles at once in a race against time to seek and destroy enemy power lines and eventually knock out their beam generator.

Build up your arsenal by collecting enemy resources to help develop and create your own new weapon systems.

Featuring a sophisticated head-to-head serial link enabling 'being-there' realism between two players.

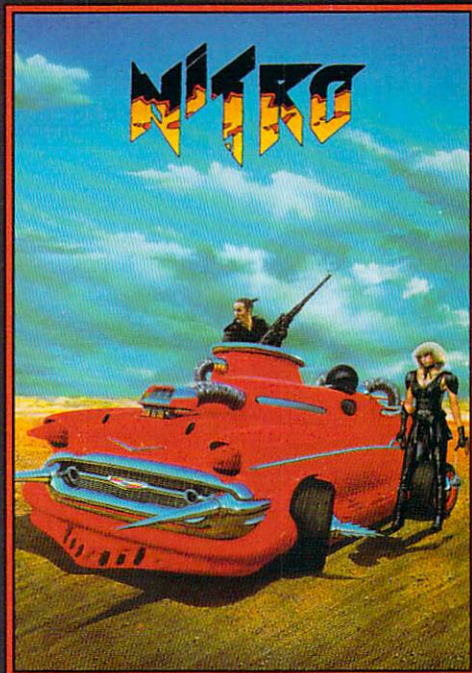
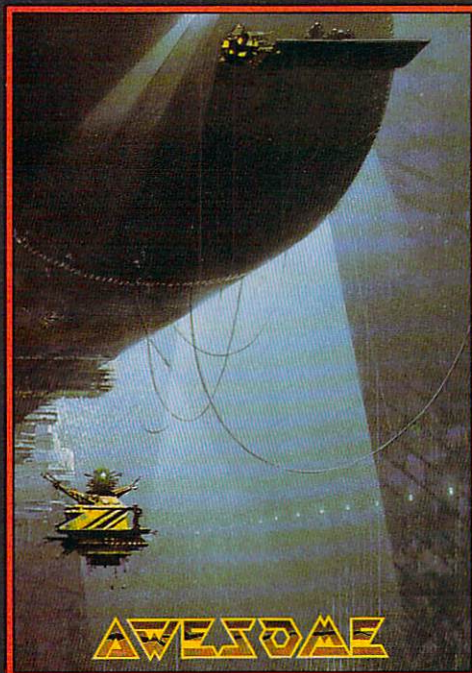
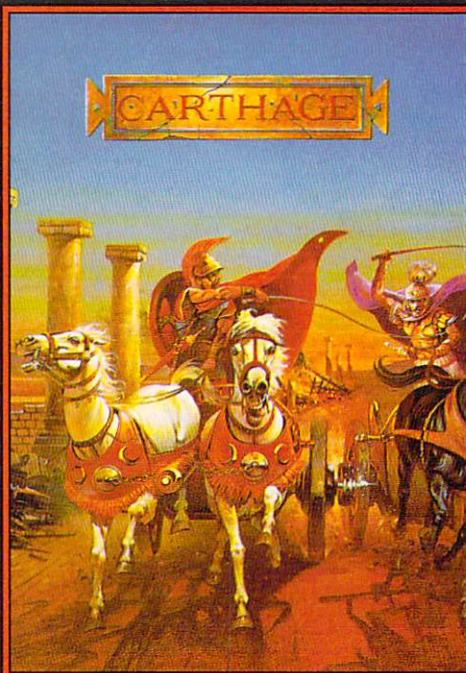
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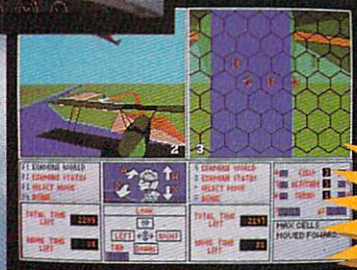
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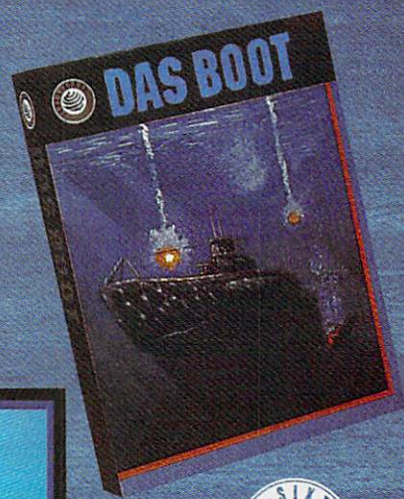
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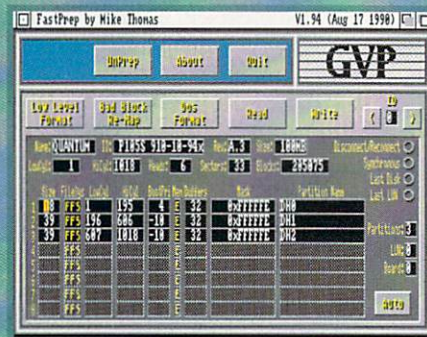
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the AMIGA PRO

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"Top 25" logo created with *Sculpt 4D* in 24 bits - converted to 640 x 480 HAM with ASDG's *Art Department Professional*.

Cover background created with Video Toaster's *Lightwave 3D*.

Everything in this magazine (except for some of the ads) is digitally created, edited, and color separated as complete pages on Amigas running off-the-shelf software and peripherals, and output directly to film.

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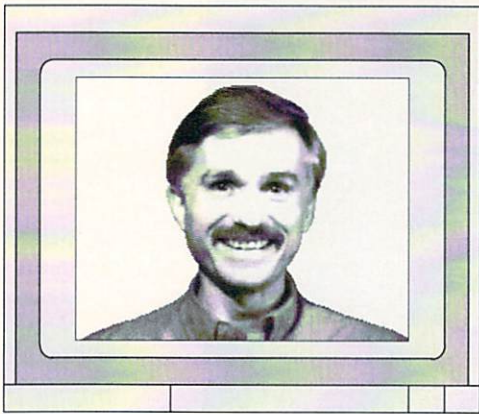
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Tom Malcom
Senior Editor

THE STATE OF GAMES The Second Bust

I've heard from several sources that the bottom is starting to drop out of the cartridge game market again, just like it did in 1983. I'm not too surprised. The Nintendo organization has kept prices far too high, and their stranglehold on the market has produced exactly the effect they tried to avoid. The company initiated a policy of not selling blank cartridges to any company whose game hadn't been approved by their review committee. The stated purpose was to keep large quantities of bad games from destroying the market like they did in the early 1980s. It worked for a while, but when any small group of people has the power to decide which games (or anything else, for that matter) will hit the market and which ones won't, the ones that do get released tend to be very conservative, very much alike, and ultimately uninteresting. That's the inevitable result of censorship of any kind, and while they can call it quality-control all they want, censorship is precisely what Nintendo has been practicing.

There's undoubtedly another factor at work in the current bust: dissatisfaction with 8-bit technology. The 16-bit cartridge machines have been on the market long enough for most people who play cartridge games to have at least seen them. The dazzling graphics and stereo sound make the old 8-bit NES at home look pretty lame. The bazillions of kids who have been playing Nintendo games for the past few years are growing up, and they expect more from games these days, not just more of the

same games. Now, don't get me wrong, the 8-bit systems are going to be around for a long, long time to come, but their days are definitely numbered. There's a strong analogy to the C64 here; there are still millions of them in use, but we're not seeing much, if any, new software for them. The same thing is likely to happen with NES; the number of new titles will dwindle and then stop. Not immediately, but within the foreseeable future. Which brings us to the question of what direction computer-based entertainment is going to take.

CRYSTAL BALL GAZING

Handheld units are going gangbusters, but I don't think they'll be successful over the long haul. The screens are just too tiny, and the machines themselves are too easy to drop and break. That leaves CD-ROM as the logical survivor. NEC has already broken ground with their TurboGrafx machine (to make sure they grab all the money they can from it, they also have a new handheld cartridge-based version of it that runs the same software) and, of course, Commodore's CDTV is about to ship. I see these as the next stage in game evolution. CDTV and other similar systems offer high-quality graphics, terrific sound, and, above all, multifunctionality. If you're not playing games on it, you can play CDs on the thing. As electronics become more sophisticated, I think we'll see even more multi-purpose machines that are as easy to use as a Nintendo, and computers will be used more for development and as controllers than for play. I expect that CDTV and other CD-based systems will be revamped and upsized to handle videodiscs as well as audio CDs. The massive amounts of storage these devices offer, along with the simplicity of operation, will certainly change the face

of gaming altogether.

I think games will become even more video-like than they already are. With the big-name film producers like Disney and Lucasfilm moving more deeply into game territory, the games will become much more cinematic, incorporating not just computer graphics, but live-action video. Cinemaware's term 'interactive movies' will take on a whole new meaning (in fact, they're already working on some CD-ROM games). Inevitably, computer-only games will become the poor relations of these massive new entertainments, since they don't have the same capability for live video. We'll still see plenty of them, but developers will increasingly move on to the new platforms. One possibility is that they will become more of an art form, aiming more for aesthetic goals and abstract ideas rather than trying to recreate reality.

None of this is going to happen overnight; the general public is always very slow to accept new technologies. VCRs were around for years before they caught the public fancy. However, the wheels of change are already turning, and they're going to start spinning faster and faster. High definition TV, new cable and satellite systems with huge numbers of channels (some of them interactive), the switch from magnetic to optical data storage, the decline in electronics prices, and the simplification of using electronic devices (let's face it, the vast majority of people are scared silly of computers, keyboards, and mice) are all going to have an exponential effect. What we've seen for the past decade is only the beginning of the video revolution, and the next ten years will see profound changes in the way we inform and entertain ourselves. It's going to be an interesting time. Somebody ought to make a video game about it.

- Tom Malcom

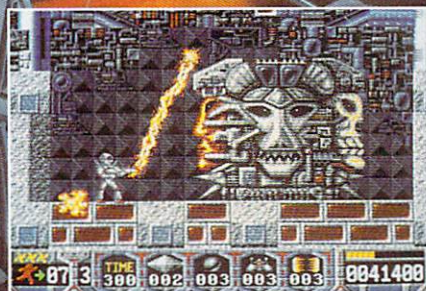
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We've gotten a few letters from readers who seem to misunderstand the situation regarding the now-defunct Transactor Amiga magazine. .info did not buy Trans-Ami. It ceased publishing, but is still owned by a British magazine publisher. .info simply hired the Transactor's former editors, Chris Zamara and Nick Sullivan, to edit our Technical Support section. Chris and Nick themselves had absolutely nothing to do with the business dealings or business practices of the Transactor. They were simply editorial employees. If you have questions about your Transactor subscription, please don't bother Chris & Nick or .info, with your inquiries. We can't help you. Instead, contact Antony Jacobson, Croftward Ltd., Finsbury Business Centre, 40 Bowling Green Lane, EC1R ONE, England, 44-01-278-0333.

- Mark & Benn

I'm writing to ask about an .info Game Tip I read in the last issue. I have tried it numerous times and can't get it to work. Could you please explain how to do this? I would really like the extra help, guys. Thanks for making such a good magazine. I can never wait to see what will be inside next month's issue!

- Steve Kehs, Rutland, VT

Much as I'd love to personally test every

gametip that comes in, it's truly impossible. Benn has this silly rule that you actually have to work in order to pick up your paycheck. Can you believe it? Consequently, game tips sent in by readers come without an implied or expressed warranty. I try to keep them reasonably accurate, but there's no way to know if they all work. Some may work on some machines or game versions and not others. That's part of the fun. If you're having trouble completing a game, the Amiga gaming areas on GEnie, CompuServe, and PLINK are excellent places to chat with other gamers and pick up strategies and tips. Check them out.

- Judith

I love your new layout! Here's my question; I have an A500 with 1.5 MB of RAM and a 20 MB hard drive. I am interested in the new chipset from Commodore. I bought the KickStart 1.3 auto-boot ROM with my hard drive and I'm wondering what the new chipset will do for me. I'd love to be able to get 640x400 resolution on my monitor without flicker.

- Patrick Whitesell, Gilroy, CA

Only the Super Agnus chip will do you much good with your A500, at least for the time being. The Super Agnus will boost you up to 1 meg of chip RAM. Installing this chip involves opening the case and cutting a trace which will, of course, void your warranty. Any authorized service center can do this for you for a price. There's additional circuitry involved in the no-flicker circuit, so right now the 500 can't use the new chipset for flicker-free hi-res. But the Rumor Mill says someone may be working on an adapter board. By the way, even if you did manage to de-flicker your A500 you'd still need a new multisync monitor to get flicker-free video.

- Mark & Benn

Is it possible to save Amiga files to IBM format with CrossDOS? The article in issue #31 says that you can save IBM files to Amiga format for use on the Amiga, but I was wondering if it was possible to go the other way as well.

- Chet Patel, Scottsdale, AZ

It's not only possible, it's one of the features that makes CrossDOS so useful. CrossDOS (from Consultron) allows you to mount a disk

drive as both an AmigaDOS drive and an MS/DOS drive at the same time. Depending on how you access it (for example, as DFI: or B:) you can save and create either AmigaDOS or MS/DOS data files. CrossDOS isn't an emulator like Pulsar's Power PC Board for the A500, but it's great for transporting data files between your Amiga and an IBM for wordprocessing or spreadsheets.

- Mark & Benn

Corn Heads: After years of procrastinating and paying exorbitant newsstand prices I have succumbed to your catchy subscription card. Keep up the quality coverage and I just might send you low-life corn worms some more chicken scratch next year!

- Tim Colby, Madison, WI

Dear Cheese Head: (Notice we begin our reply with a Miss Manners approved salutation.) Thanks for the subscription money, Amiga dweeb. Though you're just one of the millions of computer people who have a tough time expressing themselves, we understand what you really meant. Thanks for this issue's obligatory ".info Is Great" letter.

- Mark & Benn

I'm sorry .info, you've changed. What's missing is the amateurish touch INFO had always been criticized for. I've always regarded this loose humor at the expense of advertisers, other magazines, and .info itself to be your strongest quality, and the reason I buy .info. Just put a little more INFO back into .info.

- Myrak Khormon, Newark, CA

Yes, we have changed. For the better, we hope. We've grown up a bit, but it's all for appearances. We're still eight Peter Pans (up two Peter Pans from before) bringing you more info more often, and having a blast doing it. If the .info "solo voice" seems somewhat harder to pick out, it's only because of the addition of so many excellent and knowledgeable writers who have their own voice and style, which we try to retain. Think of .info as a full chorus now. We're still as tough and uncompromising as ever. We just have more experience at being amateurs!

- Mark & Benn




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Remember your original reasons for getting an Amiga? Of course you do. Silly question.


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
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For business people, it can create presentations that persuade. For people in education and training, it can help create interactive instructional programs. For anyone, anywhere, it can liberate the way they communicate, whether they are delivering information or entertainment.  

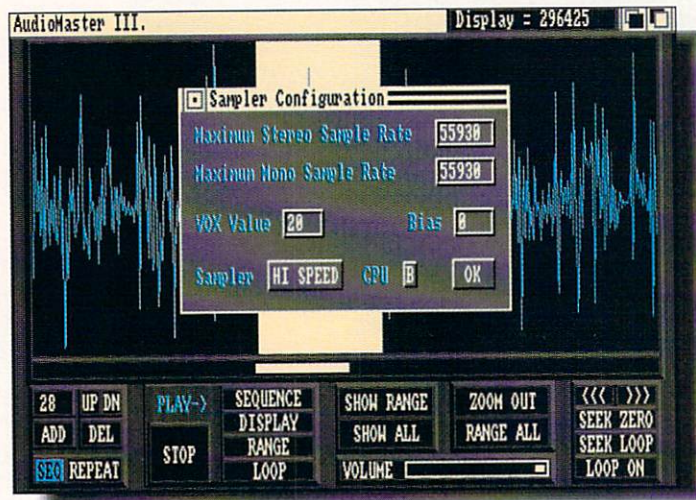
Call 1-800-66-AMIGA soon to find the location of your closest Amiga dealer. For you, it's another confirmation of what you knew before most people: namely how smart Amiga is and how shrewd its owners were when they bought one.

Amiga®. The computer for the creative mind.™

©Commodore®

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NEW PRODUCTS



The latest sound sampling software from Aegis / Oxxi, *Audiomaster III*.

OXXI WARE

There are several new things in Oxxi's product pipeline. **SpectraColor** is a HAM paint and animation package being done by the same people who developed *Photon Paint*. The most notable feature is an animation menu. The animation functions take the key-frame approach: define the first and last frames of the animation and the program takes care of the rest. Price hadn't been set at presstime. **Audiomaster III** has some very nicely done sound sample editing and playback features. One of the best things about it is a CD player emulator that can be programmed to play a succession of sound files just like a real CD player. The software (you'll have to provide your own hardware digitizer) supports high sampling rates, loop sequencing (which can produce Max Headroom-type effects), and there's even an oscilloscope. Price is \$99.95. And finally, Oxxi is releasing a computer calendar featuring art by the renowned Jim Sachs. All in all, a fine crop of new Oxxi products. PO Box 90309, Long Beach, CA 90809. 213-427-1227.

VIDEOGRAPHY

Eschalon Development is shipping a new collection of utilities to make your video work a little easier. **Video Tools** is aimed at the professional video market

and includes such things as a Crediter, which is a variable-speed credit text scroller that offers a choice of fonts. The Subtiller will take text from your word-processor and put it on the screen with the click of a mouse. The Prompter turns your Amiga into a teleprompting machine and offers control over the speed (which can be adjusted on the fly), cue marker, and position of the text. There are also two multimedia tools: Image Presenter is a script- and ARexx-controllable slideshow with various wipes and transitions, while Ascension is a full-fledged presentation generator that has both a point and click interface in addition to a scripting language. It supports sound, samples, speech, animations, and still images. If all this isn't enough, there are other tools as well, including a background generator and video slate, among other goodies. Price for the whole works is \$299.95. 110/2 Renaissance Square, New Westminster, BC Canada V3M 6K3. 604-520-1543.

AMIGA BAGS

If you've ever taken your Amiga along with you on a trip, you know what a pain it can be packing the thing up. Left Hemisphere's **AmiTote-500**, **AmiTote-2000**, or **AmiTote-3000** (\$89.95 each) will make the trip a lot more convenient. They conform to airline standards for carry-on baggage and have

space for the CPU, power supply, mouse, two slimline external drives, and assorted junk (like disks, mousepads, etc.). There's also an external pouch (I love it - a marsupial carrying case) for even more of the stuff we Amiga junkies like to haul around with us. And, of course, there is a companion bag to accommodate a standard Amiga monitor. The **AmiTote-1084/1950** retails for \$69.95. N. 1825 Ash St., Spokane, WA 99205. 509-325-0155.

AS IN WIZ OF

Someone has been watching entirely too many old Sean Connery movies and named a software company after one of them. **Zardoz Software** is shipping **ImageFinder**, the first of a promised series of Amiga utilities. The program produces thumbnail sketches of your graphic images and generates an index of them which can then be scanned through to save you loading endless cryptically named picture files. You can also search the index by various criteria, including image size and depth, primary/secondary color (!), and density. Price is \$65. 6114 LaSalle Ave., Suite 304, Oakland, CA 94611. 415-339-6280.

MASSIVE STORAGE

Our continuing search for unlimited fast storage has led us to **Ricoh** and **Great Valley Products**. GVP has put their SCSI controller together with Ricoh's 50-meg removable-media hard drive and called the result the **GVP SeriesII RH-5500**. The drive itself is a 5.25" half-height unit that is hermetically sealed for greater reliability and protection against dust and other contaminants that could potentially wreak havoc with your data. It even has an air cleaning system for added protection, and the drive's heads are retracted when there's no cartridge in place. \$999 will get you the drive, the controller, and one cartridge. Great Valley Products, 600 Clark Ave., King of Prussia, PA 19406. 215-337-8770.

Electric Thesaurus

By SoftWood, Inc.

\$49.95

SoftWood's Electric Thesaurus is the highest quality electronic thesaurus on the market today. It utilizes the "Roget's II Electronic Thesaurus" database and search engine developed by Houghton Mifflin Company, a leading supplier of Computer-Aided Proofreading (CAPR) software and respected textbook publisher. Electric Thesaurus contains over 500,000 synonyms and offers concise definitions for each meaning of a queried word. Each definition includes its part-of-speech and a list of accurate synonyms *in their properly inflected forms*.

Key Benefits include:

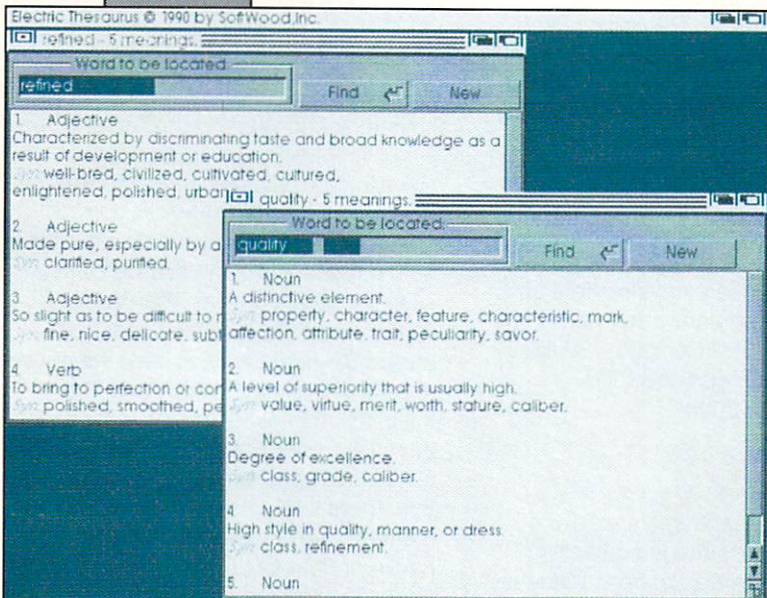
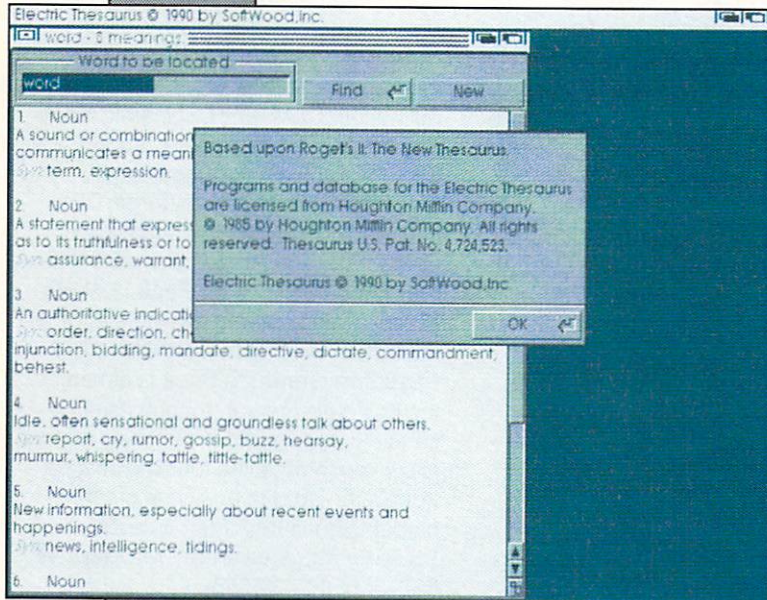
- AREXX port with over 15 commands along with the ability to send scripts to other programs, plus Clipboard Device (Copy / Paste) support provide Thesaurus functionality to programs that do not have a Thesaurus.
- Provides accurate, useful definitions so the user may choose the most precise meaning.
- Offers a thorough selection of carefully chosen synonyms for each definition - assuring users of an appropriate choice.
- Provides part-of-speech information - identifies the word as a noun, verb, adjective, or adverb.
- Gives the appropriate grammatical inflection for all words.
- Orders synonyms by frequency of use in the English language so users have the choice of frequently used words or less common choices.
- Cross references each selection to give all synonyms for the selected meaning of a word.
- Omits slang, vulgar, and sexist terms which may be offensive in the business and home environment.

Electric Thesaurus works with both Workbench 1.3 and Workbench 2.0. It requires an Amiga with at least 512K and one disk drive. Use of a

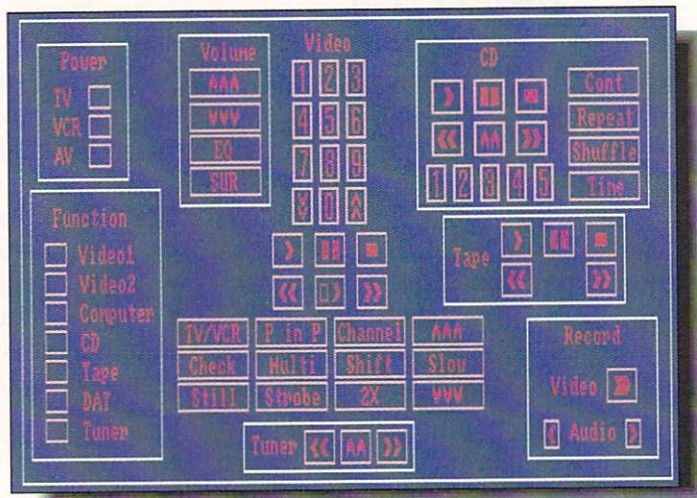
hard disk is strongly recommended. If a hard disk is not available, Electric Thesaurus can be operated from RAM. Electric Thesaurus was developed for the Amiga with the user in mind. It provides a fast, accurate way to enhance one's writing.

SoftWood, Inc., P.O. Box 51209, Phoenix, Arizona 85076

1 (800) 247-8314



NEW PRODUCTS



Tom's onscreen IR remote controller made with Geodesic's IllumiLink.

REMOTELY AMIGA

One of the niftiest gadgets yet for your Amiga is *Geodesic Publications' IllumiLink*. It's a little box that turns the computer into the ultimate programmable infrared remote controller. It plugs into the joystick port (via an extension cable) and will both sample and transmit whatever infrared signal you aim at it. Using a paint program and the included software, you can design an onscreen remote (you could also use a scanned image of an actual remote), define buttons on it, and then program it with IR signals. (Anyone with a programmable remote can appreciate the value of having a backup of all the signals stored in one place.) Transmitting the signals is then as simple as clicking the onscreen button. These AIR Windows, as they're called, are virtually unlimited, and you can have as many of them open as memory permits. If all this isn't enough, you can also plug an ordinary cordless phone into the *IllumiLink* box and use it as a cordless mouse controller. It's an impressive sight to sit across the room from the computer, push buttons on the phone, and watch the pointer glide across the screen. The software also supports ARexx and *AmigaVision*, making it possible to perform some incredibly complex operations. \$100.00. PO Box 956068, Duluth, GA 30136. 404-822-0566.

MINIX, READ UNIX

Pay attention, people, this is an important new product that will bring the Amiga even further into the mainstream Unix world. *Prentice-Hall* is publishing **MINIX 1.5**, a Unix Version 7 call-compatible operating system. It is available for the Amiga, Macintosh, IBM AT/386 machines, and Atari ST. The Amiga version comes on nine disks and includes all of the source code (written in C). It includes a C compiler, three editors (based on vi, ed, and emacs), over 175 utilities, and over 225 library procedures. There's also a shell that's functionally identical to the standard-issue Unix Bourne shell. Its main shortcoming: there is as yet no hard drive support, though that should come eventually through independent development of appropriate driver software. Price is \$169. *Prentice-Hall Computer Books and Software*, Englewood Cliffs, NJ 07632. 201-592-2000.

TAD PRO

ASDG has written a superset of their extraordinary image processing software, *The Art Department*. With the ability to not only read, but now write in a whole slew of graphic formats, **The Art Department Professional** (\$199.95) can also directly control many external hardware devices, including, to

name a few, Polaroid CI-3000 and CI-5000 film recorders, Sharp scanners, Digital Creations' DCTV, and Black Belt Systems' HAM-E. *ASDG* has also added ARexx support. The list of included loader/saver modules reads like a what's what of computer graphic-dom: *DigiView* 21-bit, *Turbo Silver*, *Sculpt*, *GIF*, *PCX*, *DPaint II Enhanced*, *MacPaint*, and a new Super-IFF facility that will handle HAM, EHB, Dynamic HAM and HIRES, AHAM, SHAM, and ARES. If those aren't enough, additional loader/saver modules for Targa, TIFF, Pict2, and Rendition are separately available in **The Art Department Professional Conversion Pack** (\$89.95). *ASDG* is also making available another related product: **Art Department Presentation Graphics Pack** is aimed at the business market (though its utility certainly isn't limited to just that) and will allow you to combine multiple images from *TAD Pro* with business graphics for output to a film recorder. It costs \$129.95. 925 Stewart St., Madison, WI 53713. 608-273-6585.

EXPANDING AMIGA UNIVERSE

If you've been putting off buying a hard drive because you know you'll also have to spend yet more bucks for some kind of controller, we've got some good news for you. *Expansion Systems* is coming out with **DataFlyer**, a full-featured SCSI controller that retails for \$99, easily the lowest price we've ever seen for such a device. The company states that while it isn't the speediest unit on the market, it's at least the equal of 90% of available controllers. The thing is autobooting, though it does have the ability to defeat the autobooting simply by holding down the left mousebutton. There's also an optional plug-in memory board available for it that will hold 4 or 8 megs of SIMM modules. It's currently available as a card for the A2000, with a chassis version for the A500 to follow. 44862 Osgood Rd., Fremont, CA 94539. 415-656-2890.

*All photographs are of
actual DCTV screens.*



The Future Is Here

- ▲ Paint, digitize and display full color NTSC video graphics on any Amiga.*
- ▲ Capture a video frame in 10 seconds from any color video camera. (Also works with still video cameras, video disk and still frame capable VCR's.)
- ▲ Display and capture full color 24 bit high resolution images.
- ▲ Convert DCTV™ images to or from any IFF display format (including HAM and 24 bit).
- ▲ Paint, digitize and conversion software are all included.
- ▲ Works with all popular 3D programs.
- ▲ Animate in full NTSC color.

\$495

** Min. 1 Meg. required*

DCTV™ (Digital Composite Television) is a revolutionary new video display and digitizing system for the Amiga. Using the Amiga's chip memory as its frame buffer memory, DCTV™ creates a full color NTSC display with all the color and resolution of television. Sophisticated true color video paint, digitizing and image processing software are all combined into one easy to use package included with DCTV™. DCTV™ also works with all popular 3D programs to create full color animations that can be played back in real time.

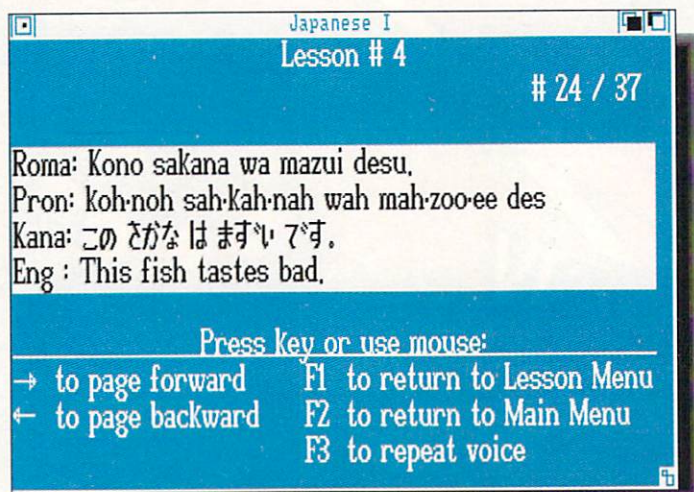
DIGITAL

C R E A T I O N S

2865 Sunrise Boulevard Suite 103 Rancho Cordova CA 95742 Telephone 916/344-4825 FAX 916/635-0475

©1990 Digital Creations. Amiga is a registered trademark of Commodore Business Machines. Patents applied for. Circle #107 on the Reader Service Card.

NEW PRODUCTS



Learning what to say in a sushi bar with *Japanese I*.

KONNICHI WA, AMIGA-SAN

You haven't lived until you've heard your Amiga speaking Japanese, and now you can make your life complete. **Japanese I** is an introductory course that will take you through the rudiments of the language, both spoken and written (it uses custom characters). The program is comprised of four lessons covering basic vocabulary and expressions. The onscreen written Japanese shows Hiragana, Katakana, or Kanji, with each word or phrase also spelled out in Roman characters. You'll be speaking Japanese just like an Amiga in no time! (Actually, while the program will give you basic pronunciation, we would suggest listening to some human Japanese to get the inflections.) \$41.95 from *Education Tutorial Software*. 10811 Ashton Ave., Suite 209, Los Angeles, CA 90024. 213-470-6205.

SON OF X

Microillusions has come out with a scaled-down consumer version of *Music X*, their successful MIDI music sequencer. **Music X Jr.** retails for \$149.95 (versus \$299.95 for the senior version) and includes a sequencer, bar editor, filter page, samples page, and keyboard mapping. The music you create on it is also compatible with *Music X*. PO Box 3475, Granada Hills, CA 91394.

BASICALLY SPEAKING

In addition to all of their hardware projects, *M.A.S.T.* somehow found time to create **Blitz BASIC**. This incarnation of the language is easily the fastest we've seen around here. Its built-in compiler will handle 6500 lines of code per minute, and *M.A.S.T.* has rewritten the Amiga libraries for even more speed. Just a few of the features: commands to handle IFF pictures, brushes, and anim brushes; special effects like fade-in/out; dual playfields; direct access to the audio hardware; direct sprite/blitter/copper control, and more. The programs you develop can be made standalone, though they do require a runtime library. List price is \$149.95. 1395 Greg St., #106, Sparks, NV 89431. 702-359-0444.

BIG CHIPS

We haven't been able to ferret out many additional details or specs, but *Michigan Software* provided us with the bare facts about their new **Megachip 2000**. Developed by DKB Software, the device gives the A2000 two megabytes of chip RAM! It comes with a Super Agnus chip installed (that's not the Father Agnus, but the same one that's used in the A3000) and retails for \$450.00. For more information, contact *Michigan Software*, 43345 Grand River, Novi, MI 48375. 313-348-4477.

SKETCHPAD

Dakota is well-known in the PC market for their graphics tablets, particularly the large-scale ones used with workstations, and now they've released two models for the Amiga. The **Sketch-Master** comes in two sizes, 11.7" x 11.7" and 12" x 18" (active area - the tablets themselves are a little bigger than that) which retail for \$449 and \$699 respectively. They are powered directly from the serial port, eliminating the need for an external supply. They support any mouse operation and come with a pen-stylus as well as a 4-button cursor puck. 55 Heritage Ave., Portsmouth, NH 03801. 603-427-0100.

BLUE CHIP

TTR Development is shipping their new **Sapphire 68020/68881** 12Mhz accelerator, which plugs right into the slot where your 68000 normally lives. It works on any A1000, A2000, or A500 and claims to give a 2.4x speedup over an unaccelerated machine, or up to a 4-fold speedup with software that enables the '020's caching capability. Price is \$399. 1120 Gammon Lane, Madison, WI 53719. 608-277-8071.

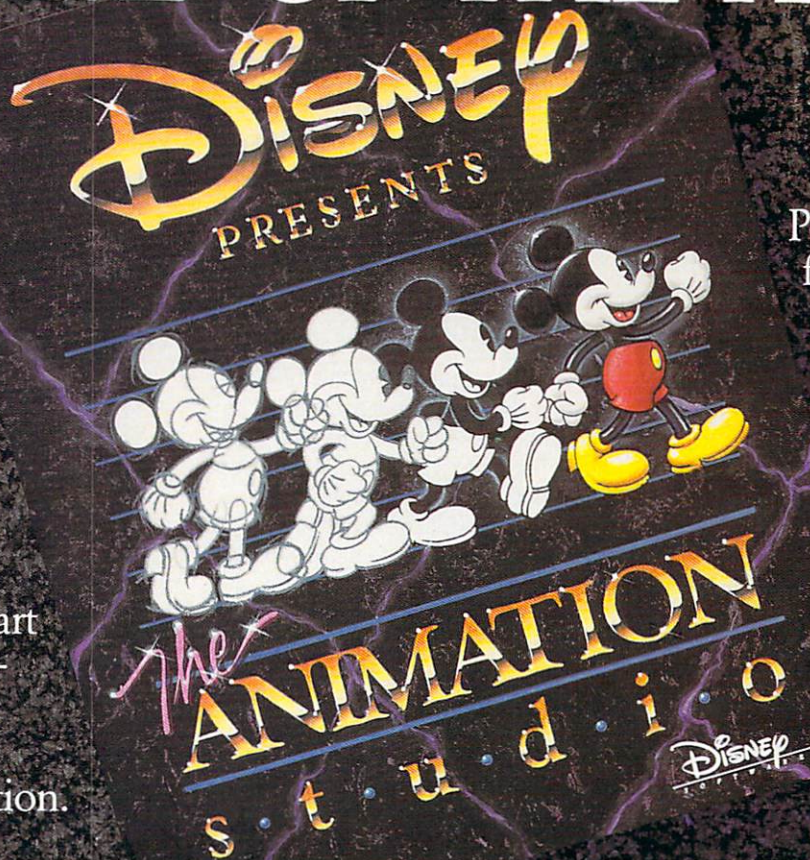
DTV REVEALED

Jay Gross, former editor of *AX Magazine*, has written a practical, layman's guide to working with video. **The Amiga Desktop Video Workbook** covers the field from animation and raytracing to sound and putting the titles on your creation. It also tells you how to go about choosing the right equipment to get the job done and even includes a section on running a video business. Written in plain English (and Jay certainly does know how to write clearly - we've been reading him for a long time), the book also includes a disk. The 240-page softcover book is published by *MicroSearch* and retails for \$34.95. 9896 S.W. Freeway, Houston, TX 77074. 713-988-2818.



POWERFUL. EASY-TO-USE. STATE-OF-THE-ART.

The Animation Studio is the only full-featured animation and paint program to utilize state-of-the-art cel animation techniques that are characteristic of Disney-style animation.



Powerful enough for the professional, yet simple enough for the novice, **The Animation Studio** gives you the ability to create or enhance full-length animated sequences.

NOW YOU CAN HAVE TOTAL CONTROL OF CLASSIC ANIMATION FEATURES

● Onion Skin:

This exclusive Disney feature lets you produce animations by seeing through three previous cels.

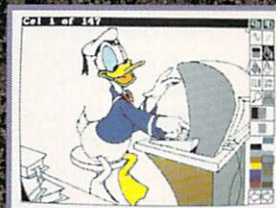
● **Exposure Sheet:** This powerful feature allows you to order the cels any way you want and control the timing of each.

● **Music and Sound Effects:** Add sound, music, speech and cartoon special effects to your animations.



ONION SKIN

● **Ink & Paint:** Bring color to your animation. Use the dither option to create more than 4096 colors and superimpose on background pictures!



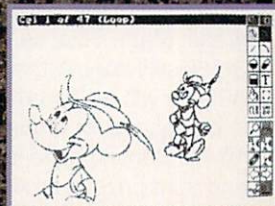
INK AND PAINT

● Basic & Advanced Animation Techniques:

Learn techniques such as Squash and Stretch, Arc of Motion, In-betweening, and Path of Action. Learn how to go from rough concept to finished animation—complete with color and sound!

THREE DISKS INCLUDED:

- **Studio Disk**—Sample Disney animations are provided for you to study and modify.
- **Morgue Disk**—Includes actual animations taken from classic Disney films.
- **Demo Disk**—Contains a fully colored animation prepared with The Animation Studio.



ANIMATION TECHNIQUES

Designed by
Reichart Von Wolfsheld
Written by
Leo Schwab

● **ENTER THE ANIMATION CONTEST—WIN A TRIP FOR FOUR TO WALT DISNEY WORLD!** Details in every package. Void in the states of Vermont and Maryland.

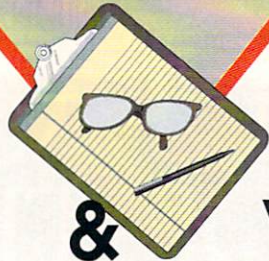
Available Now:
Amiga version for all Amiga machines
512K required; 1 meg recommended

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Walt Disney Computer Software, Inc. • 500 S. Buena Vista Street • Burbank, CA 91521 • © The Walt Disney Company

Disney
S O F T W A R E

Circle #108 on the Reader Service Card.

NEWS & VIEWS



COMMODORE NEWS

Commodore has announced a \$25 rebate for purchasers of *AmigaVision*. Current Amiga owners can pick up *AmigaVision*, an icon-based multimedia authoring system, at a participating retailer. To receive the rebate you must send in the original rebate coupon, the *AmigaVision* warranty card, and a copy of your proof-of-purchase.

Commodore has lowered the suggested retail price of the Amiga 500C (consumer version) to \$599, making it the lowest priced home computer of its kind on the market. Retailers such as Macy's, Montgomery Ward, J.C. Penney, and others may price the Amiga 500C at under \$500, which is often considered the "magic price" at which consumers will buy.

Commodore has introduced its entry into the laptop computer market with the seven pound MS/DOS compatible C286-LT VGA notebook size personal computer. The C286-LT comes equipped with a 80C286 CPU, 12.5 MHz clock speed, 1 Mb RAM, 20 Mb hard drive, and *Microsoft Windows 3.0*. Also standard is VGA graphics on a crisp sidelit LCD screen, and rechargeable batteries delivering up to six hours of continuous usage. Suggested retail price is \$2999.

AN AMIGA FOR THE TEACHER

Commodore has announced an *AmigaVision* script contest for educators in K-12. The educational scripts must be 15-30 minutes in length and cover one of the following curriculum areas: Math, Science, English, Social Studies/History, Art, or Music. Three A3000s will be awarded as first prizes in categories for grades 1-5, 6-9, and 10-12. Second prize is an A2000HD and third prize is an A500 for each division. All entries must be received by January 15th, 1991. Educators with additional questions should contact Commodore's Susan Bengough at 215-431-9100.

Teachers and institutional buyers

who purchase any Amiga educational system before December 31st are eligible to receive a free copy of *EZ-Grade*, a computerized method of keeping track of student data. Questions should also be directed to Susan Bengough.

ONLY AMIGA MAKES IT POSSIBLE

Atlanta, site of the 1996 Summer Olympics, was assisted in its bid for the games by the Georgia Institute of Technology, home of the Multimedia Technology Lab. Georgia Tech developed a widescreen multimedia presentation of the planned facilities for the International Olympic Committee using three videodisc players, three computers, digitized narration and music, three six-foot long video screens, and a computer animated, touch-sensitive 3D model of the proposed Olympic Village. All of it was controlled by an Amiga 2500. IOC members were so impressed with the presentation, some even report-

edly brought members of their families back to see the system.

TOASTER TAPES

The first volume in a series of video training tapes on Newtek's Video Toaster has been released by TeleGraphics International. Volume One introduces to the viewer the many features and capabilities of the Toaster. The training series is produced for videographers, production studios, cable networks or audio/visual departments incorporating Amigas in video projects. Volume One leads the viewer through integration and application of the Toaster for production and editing. Subjects covered in the first video tape include hardware requirements, production switcher operation, digital effects creation, tips and techniques, frame store application, linear keying, and chroma effects. TeleGraphics International, 605 Dock St., Wilmington NC, 28401, 919-762-8028.

.info UPDATE

MOVES & CHANGES

✓ **Dr. T's Music Software** has moved to 100 Crescent Road, Suite 1B, Needham, MA 02192. The new phone number is 617-455-1454.

✓ **Blue Ribbon Bakery** has changed its name to **Blue Ribbon SoundWorks** and also reduced the price for *Who/What/When/Where!* utility to \$59. The address is also changed: 1293 Briardale, Atlanta, GA 30306. 404-377-1514 voice, 404-377-2277 FAX.

STUFF

✓ **Anakin Research** has updated the software for their *Easy!* graphics tablet; it is now 2.0 compatible, supports overscan, automatically detects PAL or NTSC, and is faster overall. Registered owners can get the upgrade for \$24.95. 100 Westmore Dr., Unit 11C, Rexdale, ON Canada M9V 5C3. 416-744-4246 voice, 416-744-4248 FAX.

✓ Aside from the occasional "ReadMe" file, we don't often see manual upgrades, but **Shereff Systems** is sending out new ones to registered owners of their *Pro Video Post*. They're working back from recent purchasers of the video production package to those who upgraded from earlier versions. And it's for free! 15075 SW Koll Parkway, Suite G, Beaverton, OR 97006. 503-626-2022.

THE OOPS FILE

✓ We somehow wound up with a wrong phone number for **Ricketts, Inc.** in the Nov. '90 issue. The right number to call for information on their keyboard products as well as C Ltd.'s product line is 316-788-9204.

✓ We managed to print the wrong address for **DevWare** in issue #33. It should have been 11835 Carmel Mtn. Rd., Suite 1304, San Diego, CA 92128. 617-673-0759.

**PINBALL
WIZARDS
NEVER HAD IT
THIS GOOD!**



ANNOUNCING

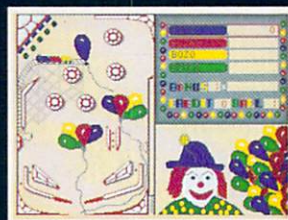
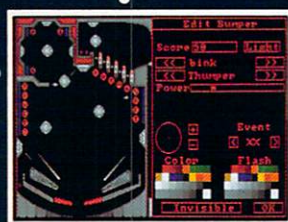
POWER PINBALL

THE FIRST PINBALL CONSTRUCTION
GAME FOR THE AMIGA

NEW FROM KARMA SOFT

The wait has been worth it! Power Pinball is here—and the game will never be the same. Power Pinball is a truly realistic simulation of a pinball machine. It reacts with the same snap, the same action. With Power Pinball, you can take your wizardry to a whole new level! Just look at what you can do:

- Construct your own one-of-a kind pinball game
- Work with pre-defined bumpers or design your own
- Use your Paint Program to design your own screen
- Import Digitized Sounds
- Create an unlimited number of games
- Swap pinball designs with other program owners
- Includes professional pre-constructed pinball games



You can do it all with
Power Pinball—the absolute
pinball fantasy!

Dealer Inquiries
Welcome

POWER PINBALL

KarmaSoft

P.O. Box 1034
Golden, CO 80402
(303) 277-1241

Circle #130 on the Reader Service Card.

NEWS & VIEWS

RUMOR MILL

DISCLAIMER: The following are among the most entertaining rumors we've heard the past month. They are presented for your entertainment and amusement only. Please do not make any important decisions based on these rumors, as some will prove to be inaccurate or just plain false.

➤ Now under development at Commodore: new Bridgeboards! We hear that a new fast Turbo XT board is in the works. We understand it will be "price competitive" and will come with a Janus upgrade that will allow it to run Windows 3.0 and MS/DOS 2.6. Look for it shortly after the first of the year. There's a new higher-end board due farther down the line, too.

➤ Some employees at Commodore now have Amiga 3500 "Tower Case 3000s" sitting on (or under) their desks. From what we've been able to piece together, it looks like the units have all the slots of an Amiga 2000, a beefy power supply, plus room for a couple of 3.5" drives and a couple of 5.25" drives. Should take care of those who have been complaining about the wimpy expansion room in the A3000. Especially those who really want juiced-up AT compatibility.

➤ The first shipment of CDTV units has reportedly come in from the Far East and is now in the hands of Serious Developers.

➤ Our sources tell us there are now two - count'em - two million Amigas in the field.

➤ You know True Vision, the folks who make those nifty Targa graphics boards for MS/DOS machines? Guess what machine they're said to be developing graphics boards for now?

➤ Maybe it's just that we've hit a landmark number again, but - just as we heard when the Amiga hit an installed base of one million units - we again hear that MicroSoft, Ashton-Tate, and Lotus are interested in doing Amiga products. We continue to be "guardedly optimistic" on this one. As always.

➤ Video Toasters are suddenly popping up all over the place. The only grumbling now seems to be from dealers who just can't get enough of them. One told us "If I could get my hands on a hundred of 'em, I could sell 'em all!"

SEASONS GREETINGS!

Top Ten P.D. Games

6 Disk Set for \$20!



- | | |
|--------------|------------------|
| 1. Star Trek | 7. Electric |
| 2. Moria 3.0 | Train |
| 3. Monopoly | 8. Quattro |
| 4. MechForce | 9. Destination |
| 5. Nakamoto | Moonbase |
| 6. Metro | 10. DeluxeBurger |



All public domain games from the Premier Library specially priced at \$3.99 each thru December

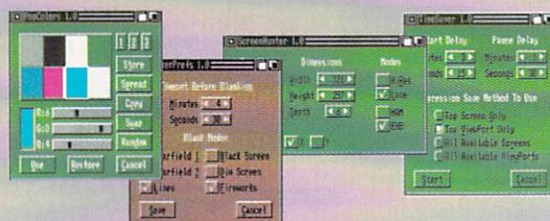


Please add \$3 per order for shipping and handling

PREMIER SOFTWARE

P.O. Box 3782
Redwood City, CA 94064
(415) 593-1207

Impression



What can you do with Impression?

Impression is more than just a snapshot program. It's a package of utilities that you will soon wonder how you did without. Here are some of the things Impression can do:

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NEWS & VIEWS

SHOW REPORT

WORLD OF AMIGA, CHICAGO

Although fewer people usually make for a more intimate party, that's not the sort of atmosphere you want at what's supposed to be a major trade show. To be fair, AmiExpo LA was going on the same weekend (October 5-7) half a continent away, and although the Chicago suburbs are my hometown, even I will admit they don't give Disneyland much in the way of competition.

Harry Copperman, president of Commodore, gave the keynote address at WOA. He announced that Commodore will *not* be shipping CDTV for the Christmas season as originally announced. They will, instead, test market CDTV in December in a limited but as yet unannounced area, with the full rollout rescheduled for February-March, 1991. Copperman cited the non-availability of supporting software as the major reason for the delay.

With a reported paid attendance of only 8400 and less than thirty exhibitors, there wasn't a whole lot of WOA show on which to report. Some new products were being demoed, including *Monday Night Football*, which promises to give TV *Sports Football* a run for its money, and *Full Metal Planet*, the third in the Dracorian series, both from Data East. Accolade's *Jack Nicklaus Unlimited Golf & Course Design* should be shipping by the time you read this. The *JNUGCD* combines a terrific golf game with a Course Designer that gives you the power to create any course you can imagine.

Reichert von Wolfshild and Leo Schwab personally demoed the *Disney Animation Studio* to fascinated onlookers. Gold Disk, Microprose, Free Spirit, Michtron, Broderbund, Sierra, Merit Software and Precision rounded out the major software exhibitors. Hardware displays by Great Valley Products, ICD, MiGraph, and Xetec attracted many

admiring and wistful viewers. The most interesting exhibitor, in my opinion, was TTR Development, the BattleTech Center people.

If the the AmiExpo LA show hadn't been such a success, I'd be pretty worried about the state of the Amiga after

WOA. Hopefully, the Hunter Group and the AmiExpo (now AmigaWorld Expo) organizers will realize for the good of everyone that it's not a real bright idea to schedule two major Amiga trade shows on the same weekend.

- Judith Kilbury-Cobb

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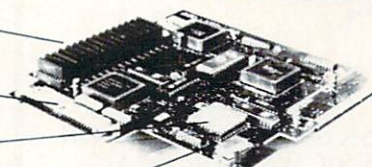
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NEWS & VIEWS

SHOW REPORT

AMIEXPO, LOS ANGELES

AmiExpo needed a rousing success and got one with the product extravaganza at the Disneyland Hotel in Anaheim the weekend of October 5-7. There were exhibitors galore, new products heaped on new products, and crowds of people looking it all over. The mood was upbeat, contrasting sharply with the previous AmiExpo in Chicago last summer, and nearly festive.

The Usual Suspects and a Few New Ones

Probably the most notable trend at

the show was the increasing number of European publishers, manufacturers, and attendees. A German company called Golem is importing a number of their hardware products, including several 3.5" and 5.25" floppy drives, some of which have LED track readouts. Their *SCSI II HD* for the A500 plugs right into the expansion buss and not only provides a 50 or 100 Mb Quantum hard drive, but also up to 4 megs of 1 Mb DRAMs. The thing will also let you add two 512K and one 256K Kickstart ROMs (including Kickstart 2.0) without having to open up your A500. They also make the *Golem Sound Mashine* (yes, it's really spelled that way), which permits up to a 56 KHz sampling rate and works with most existing sampling/ editing software as well as its own. Golem has even opened a US office at 421 Hudson, M12, New York, NY 10014. 212-727-0548.

Rossmöller Amiga showed their *Power-PC* board (the one that fits in the belly slot of the A500), the *Tornado* high-speed 68000 accelerator, and the *Medusa* Atari ST emulator. If you put these last two together, you get an Amiga-based ST that runs nearly twice as fast as the ones Atari builds. Rossmöller also has a high-density (1.52 Mb) floppy drive, memory expanders, a switchable Kickstart board, an eprom burner, and a little in-line box that shows the currently accessed track for any drive, hard or floppy. Rossmöller can be contacted at Neuer Markt 21, D-5309 Meckenheim, Germany. 02225/2061-62-63.

In addition to their *AdSCSI* hard drive controllers and *AdRAM* memory boards, ICD [815-968-2228] also showed their new *Flicker Free Video* board. It plugs into the Denise socket and produces full overscan, 480-line video output free of interlace flicker. (Actual maximum resolution is 832x480.) The other notable ICD product is their *AdSpeed* accelerator. The unit they showed me has a 14.3 MHz 68000 sitting on a little board almost exactly the same size as the chip. It can be software switched down to 7.16 MHz if the need arises. Besides their 1.52 meg high density floppy drive, memory

boards, and other hardware, Applied Engineering [214-241-6060] had their *DataLink* series of modems on display. These internal/external modems aren't new, but the *Send-FAX* option for them is. What the thing does is turn your Amiga into a FAX machine so you can send your FAXes directly from the screen to any group 3 FAX without having to dump hardcopy first. The software installs itself as a Preferences printer driver, making it as easy to use as printing a file. Sounds like it will save some trees.

An outfit called Holosoft Technologies [619-747-0663] was showing and (prematurely) selling a new graphics package called *Graphics Workshop*. It was a classic case of being impressed with a demo by the programmer, but finding out when I started working with the program myself that it is buggy, slow, and prone to visits from the guru. I'm sure future revisions will fix the problems with the program, and it's still worth a look.

Stargazers will be glad to know that Carina Software's [415-352-7328] *Voyager* planetarium software is being brought to the Amiga. Originally done for the Mac, the Amiga version looks like it will be real competition for Virtual Reality's *Distant Suns*. It's very easy to navigate, both in time and space, using standard scroll bars and point-and-click zooming. There are levels of magnification, optional constellation display, object tracking, and a large star catalog. It is also very fast. Look for it early in '91.

Until now, desktop publishing has been a serious affair aimed at adults. Pelican Software [203-335-0906] has changed that with *Pelican Press*, a new kid-level package. It is easy to use, but has enough sophistication to let kids (of any age - it's too much fun to relegate solely to the bubblegum and skateboard set) produce anything from flyers to banners to humongous wall-sized posters. There's also a paint program to create your own art.

The first Amiga OCR scanner we've heard about is coming from Pulsar International [516-997-6903]. The device is a hand-held black and white scanner with 15-level greyscale. The trainable Optical

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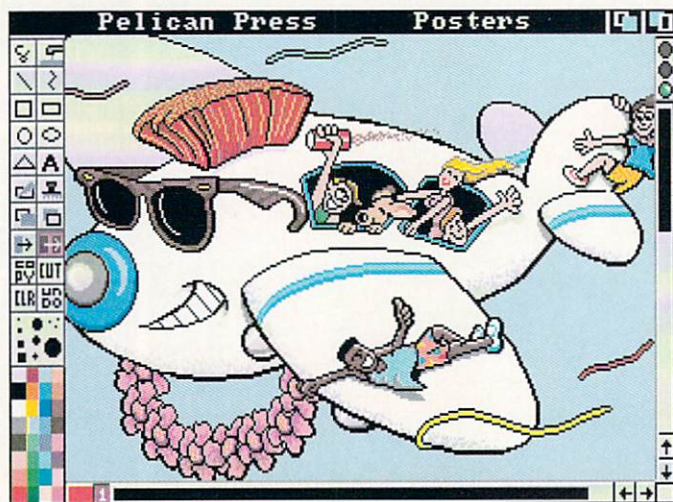
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NEWS & VIEWS

Desktop Publishing Kid-style, with Pelican Software's Pelican Press



Character Recognition software can be an enormous help in getting text from hardcopy into your computer. It generally takes about three tries during the training

process for the thing to learn to recognize a character and the scanner has a resolution up to 400 dpi. A flatbed version is also in the pipeline.

The next generation of raytracing, animation, and multimedia software is coming from Impulse and The Right Answers Group. Impulse [612-566-0221] is nearly done with their *Firecracker 24* video card and *Imagine*, a new raytracing and animation package, looks very good. They're also working on *Foundation*, an authoring system in co-development with Intuitive Technologies. The guys at The Right Answers Group [213-325-1311] are putting the finishing touches on *The Director Version 2*, which appears to be a ground-up rewrite.

Games

I was very surprised at the game room which had been set up by MicroPace, the large distributor. The individual booths were manned by representatives of the game publishers and they were showing the latest entertainmentware. Some of those showing games were Cinemaware (*Wings*), Broderbund (*Prince of Persia*), Interplay (*Neuromancer*), Avatar (*Heart of the Dragon*), MicroProse (*M1 Tank Platoon*), KarmaSoft (*Power Pinball* - yes, there will be a revision), Virgin/Mastertronic (*Spot*), and FTL, which was showing the nearly completed *Chaos Strikes Back*, commonly known as *Dungeon Master II*.

Psygnosis [617-731-3553] had their booth on the main show floor, and judging from the number of *Shadow of the Beast II* t-shirts I saw around the Disneyland area, were selling bazillions of the game. The list of what they have coming goes on and on.

Also Noteworthy

Besides the latest versions of *Professional Page* and *Professional Draw*, Gold Disk [416-828-0913] showed their new home office collection, *Gold Disk Office*, which is a collection of 5 applications (wordprocessor, spreadsheet, business graphics, database manager, and page layout). There's still no firm shipping date for their *ShowMaker*. Virtual Realities [805-545-8515] was running version 2.0 of *Vista*, their fractal/chaos landscape generator. Its new Gouraud rendering method produces some stunning images. California Access [408-378-0340] had their *Bodega Bay* expansion box for the A500 set up and it will be available in time for Christmas. Expansion Systems [415-656-2890] showed their new \$99 SCSI controller, the *DataFlyer*. Spirit Technology [801-485-4233] had some of their hardware line on display, but the newest from them is their *Byte 'N' Back* hard drive backup utility, which purports to fit 935K on a floppy. Dakota demoed their graphics tablets, Konyo [714-633-1026] showed their replacement mice, Progressive Peripherals [303-825-4144] showed their AppleTalk-compatible network, and Supra [503-967-9075] displayed their latest hardware (their '040 board should be available as soon as 68040s get through the legal barriers and start shipping in quantity).

On The Off Ramp

I have to admit a certain relief when I turned in the rental car and got on the plane to come back to the Midwest. No matter how many times I see it, I just can't get used to L.A.'s brown sky and unlike many Southern Californians, I don't much want to see the air I'm breathing. As for AmiExpo, it gave me a much-needed optimism boost.

- Tom Malcom

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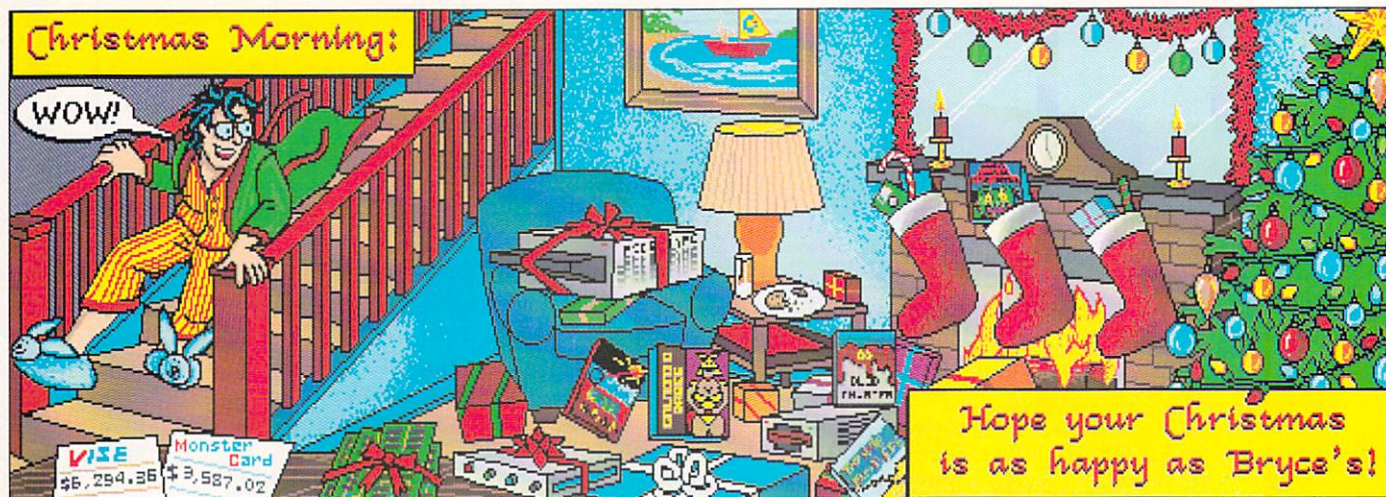
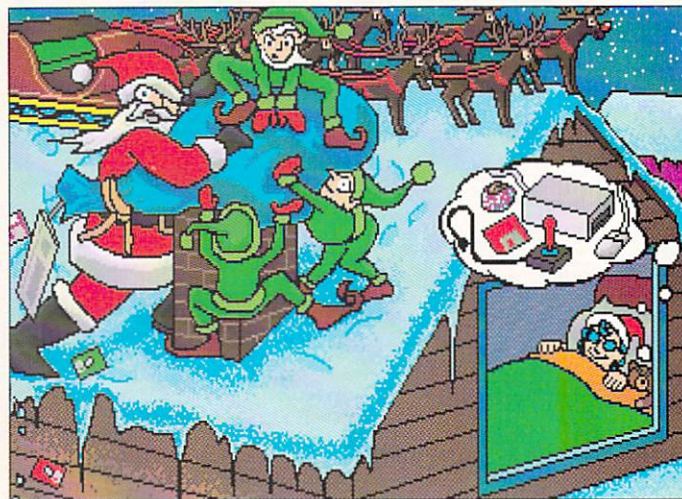


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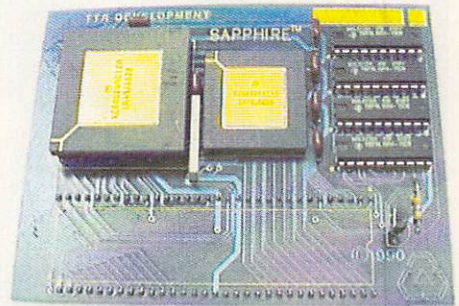
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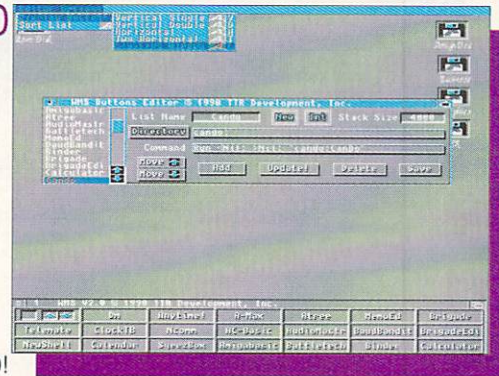
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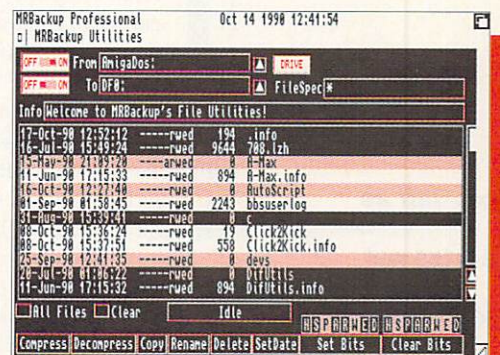


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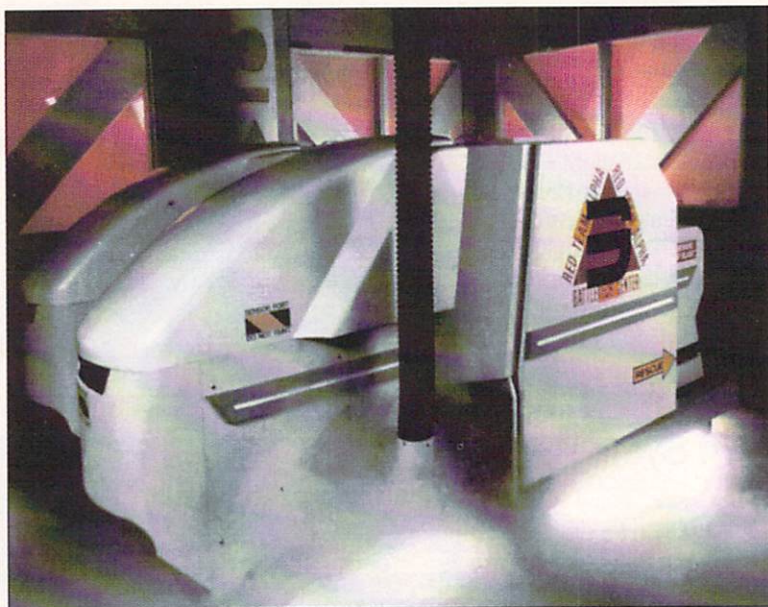
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The BattleTech Center

by Jeff Lowenthal



The exterior of a MechWarrior cockpit 'pod'.

I have sat in the future. I have lashed out with fearsome laser weapons, engaging huge robots in combat. I have controlled my own towering robot using both hands and both feet, using dozens of controls and multiple video screens. All for only \$6.00 for ten intense minutes.

Located in a downtown mall along with "The Baja Beach Club", "La Maison de Nicole" and similar yupified enterprises, the BattleTech Center makes this experience possible. It's brand new, and you've never experienced anything like it.

The brainchild of Chicagoans Jordan Weisman and Ross Babcock, BattleTech Center is the result of a dream and years of planning. Ten years ago, they started the FASA Corp., which stands for "Fredonian Aeronautics and Space Administration." FASA develops and licenses board and computer games, including some based on Star Trek. Success in that area helped finance a spin-off company, ESP Corp., formed to develop BattleTech Centers. During 1991, they expect to open seven more centers in the United States, with an eventual total of 150. The concept has also been licensed to another company for development in Japan.

This multi-million dollar investment in gaming sim-

ulation may represent the entertainment of the 90s as much as the video arcade did for the 80s. Make no mistake - despite similarities, this is not just a glorified videogame, but a simulator. Its production values bespeak the kind of planning Robert Heinlein did for his science fiction universe, which helped make his books classics of the science fiction genre. Like Heinlein's books, BattleTech is based on solid ideas, without which all the technology and flash would be meaningless.

The military and the airlines have had simulators for years, of course, and they are technological triumphs. But they were built with virtually unlimited budgets, while BattleTech Center was brought in for under \$3 million, including R&D, with about \$750,000 going for hardware. As a business it needs to turn a profit for its owners just like the arcade. One way they'll do this is selling time to people like you and me. Another is by selling franchises once their offering is registered. If you're lucky, they'll build one near you.

Just what is BattleTech scenario? Imagine you are living in the 31st Century, a time when battles for galactic real estate are fought with enormous "Battle-Mechs," 35-50 ton war machines built in the image of man and capable of incredible destructive force. But a machine, after all, is just iron, and needs intelligent guidance and strategy to prevail over similarly powerful units.

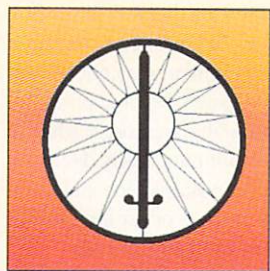
That's where you and your fellow MechWarriors come in. Playing in teams of four, each of you controls the movement and firepower of your 'Mech; the machine will prevail or perish by your skills.

Okay, so you've seen computerized battle simulations before on your box at home. But BattleTech is so different that as I write this there is no competition whatsoever for the experience at home or anywhere else in the civilian domain. This is gaming/simulation on a grand scale. To begin with, there are 16 individual cockpits, configured so four teams of BattleWarriors can play at once, four-on-four, in two separate games.

BattleTech can be reconfigured for various scenarios, with quite different environments; weather, day or night, visibility, etc. There are various kinds of 'Mechs, with different capabilities, so players of uneven ability can be matched by appropriate choice of 'Mech.

More important, the hardware can be configured to play an entirely different game with, say, spaceships, rather than 'Mechs. In fact, a space fighter game is in the can and will be introduced later. The cockpit stays the same, but the controls do different things. So,

Join Jeff as
he tries out
the BattleTech
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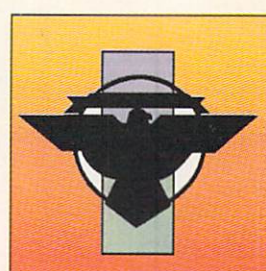
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The crests of the five empires, each ruled by a single family.

unlike arcade simulators such as Atari's *Hard Drivin'*, BattleTech Center can evolve into new experiences, limited only by the imagination of the designers and programmers.

It's unlikely to be limited by the hardware, which includes 16 networked Amiga 500 boards, one for each cockpit, plus two more computers per pod. The 500s run most of the game code and the secondary display screens. Custom graphics cards, 68020 accelerator boards, and a variety of other hardware, combined with a library of 19,000 3D graphic images, provide the power to make this thing real. The main display even varies as a unit moves away, duplicating the fogginess you see at long distance in real life.

In addition to advanced hardware, the entire Center provides an environment designed to take you into the 31st Century, complete with video newscasts from the future and a physical layout I call "early spaceship." Once inside your cockpit, you slide the canopy closed, locking out the present for ten minutes of truly frantic action in the future. While ten minutes may not seem like a long time, when the exhilarated players emerge after a game they are ready for a break.

Let's back up a minute and describe the environment. BattleTech Center is a money-making enterprise, run by people who want to recoup their investment in all this hardware. So the first thing you see on entering is a sales counter manned by people wearing military-like BattleTech uniforms, complete with designations like "Sergeant Jones." They are surrounded by T-shirts, software, and videotapes for sale. There is a Battle-Mech Operations Manual, which I recommend. This gives you a great deal of information on the equipment at your disposal, opposing 'Mechs, the "story," and so on.

If you want to play, you have to pay from \$6 to \$8, depending on the time of day, for what they call a "half-hour experience". What this means is you book a half hour, but only ten minutes of that is actual battle sim-

ulator time. The other 20 minutes is devoted to watching a training tape explaining how the hardware works and conferring with staff or teammates. By the time you read this, the tape will have been replaced by an interactive video disk presentation, providing even more information. You will want to spend some time planning with your teammates now, because once in the game the action is fast. These may be three friends, or strangers who are booking time when you are. You can also get help and advice from the BattleTech trainers. If you've seen the tape and played before, you can use all the time to question them on techniques and strategy.

They know what they're talking about, too. I watched as manager Gerry Stenson, with over a thousand hours experience, took on three novices at once, dispatching them without raising a sweat. "It was easy," he said afterward. That's at least partially due to the time it takes to familiarize yourself with the many controls and options available. You wouldn't expect to drop into an F-18 and be an ace instantly, either.

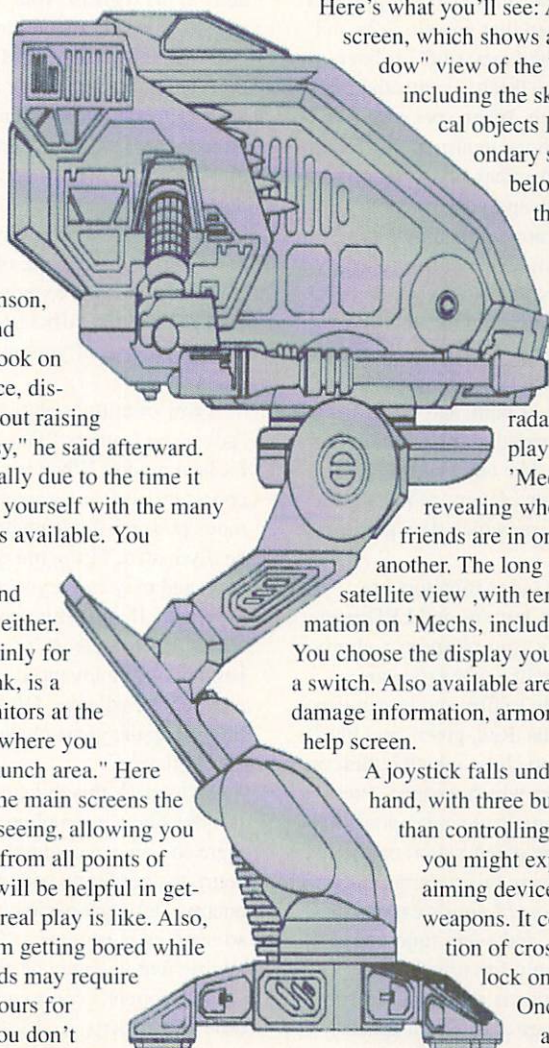
A nice touch, mainly for crowd control I think, is a set of 16 video monitors at the end of the corridor where you wait to enter the "launch area." Here you will see the same main screens the current players are seeing, allowing you to watch the action from all points of view at once. This will be helpful in getting a feel for what real play is like. Also, it will keep you from getting bored while waiting. Peak periods may require waiting up to two hours for your turn, though you don't

have to wait right there. Your time is reserved because you've paid for it, so you could browse around the North Pier mall complex and return just before your time begins.

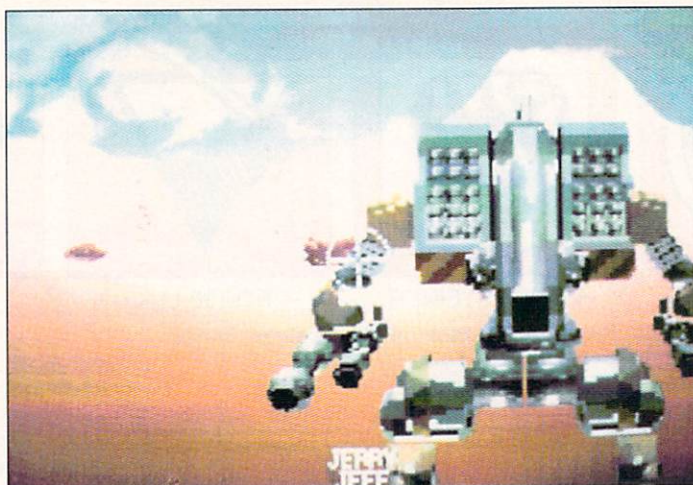
Impressed so far? Wait till you lower yourself into a cockpit and slide the canopy closed! Suddenly, you're light years from the trendy mall, transported into the battle zone. Your cockpit (or "pod") is the Mark III version, refined after putting thousands of people through earlier versions at events like the Consumer Electronics Show.

Here's what you'll see: A 25" main video screen, which shows an "out the window" view of the battlefield, including the sky and astronomical objects like moons. A secondary screen directly below, controlled by the Amiga, provides long and short range scanner information. The short range scanner is a radar-like color display with your unseen 'Mech at the center, revealing who is in your area - friends are in one color, enemies another. The long range scanner is a satellite view, with terrain and ID information on 'Mechs, including your own. You choose the display you want by flipping a switch. Also available are displays giving damage information, armor status, and a help screen.

A joystick falls under your right hand, with three buttons. Rather than controlling movement, as you might expect, this is the aiming device for your weapons. It controls the position of crosshairs which you lock on to your target. Once locked, you get a transponder-like



Facing off
with a
powerful
MechWarrior.



ID which will be the handle selected by the player controlling the 'Mech in your sights. Firing before you are locked-on will waste ammunition/energy, and you'll miss.

Because you have so many weapons available, they can be configured as to which buttons fire them after you've had some experience.

For beginners, the strategy is simple: as a rookie, it's suggested that you climb in and fire away, saving the fancy stuff for later.

To your left is the throttle controlling the speed of your 'Mech. When specially enabled by a switch it can also allow you to move backwards. Another switch lets you "torso-twist" so you and your weaponry are facing in one direction while moving in another. "Not recommended for rookies," says manager Stenson. Under your feet are two pedals (which are used together to control the direction your 'Mech travels.) Push the left one, you go left, push right, you go right. Press neither or both, and you go straight. My unit tended to drift a little, but that's easily cured. The units take a lot of abuse from hyped up players, requiring ongoing maintenance, which they get regularly.

Surrounding the video monitors are numerous switches, buttons and LED read-outs. These identify your weapons and provide necessary data like when they are recharged and ready to fire, and how much ammunition remains. Red, green, and blue buttons allow you to chose which button on the joystick will fire which weapon. Pressing the green button next to a weapon's indicator means that the green button on the joystick will fire it. Using this programming, you could place most of your weapons on, say, the red button, and every time you pressed it, they would fire together.

But remember: this is a simulation, and the weapons recharge at different speeds.

You can't fire until they have recycled, so blasting everything together may be bad strategy since you could be left defenseless.

Defenseless, you'll get hit. When you do, you'll know it! You'll see swirling flames coming at you, and your cockpit will shudder thanks to a powerful low frequency speaker under your seat. Four channel sound adds to the realism. Your video will break up, and you'll know you're in a war.

If you're lucky, your Mech will survive, possibly minus an arm or leg and its associated weapons. This naturally reduces your effectiveness, so you want to avoid being hit. If you're hit enough, your 'Mech will be destroyed, but you won't die. You'll see yourself eject and you'll be reinstalled in a new 'Mech, though one of lesser power. You'll still be able to move around, but you won't be able to inflict as much damage. You will get all of your ten minutes of action.

A row of buttons above you controls "advanced features." One advanced feature is "heat mode." When it's enabled, you must consider that firing armament of such enormous power will create heat, which needs to be dissipated. Firing too often increases the heat, and may cause you serious damage, especially if you ignite your ammunition stores. Heat mode isn't recommended for beginners, but advanced players use it as an additional challenge. Other advanced features keep the game challenging for experienced players.

And what's this thing on a flexible tube? It looks like a microphone, and it is. It's there so you can communicate with your team, to coordinate your attack on the enemy. Only one person can talk at a time, so restraint is necessary. There's also a possibility that you may be able to descramble your opponent's communications, but this too is for experts.

If you're getting the idea that this is super hardware, you're right. But the secret to BattleTech is not only equipment, it's concept. One reason computer games become boring is your ability to eventually memorize what will happen, and start winning easily. Here is the difference between BattleTech and everything else: this game is never the same, because each unit can act independently. There is no possibility of learning a pattern, since there isn't one. It's your wits against the enemy, who may be fantastically skilled and/or totally unpredictable.

BattleTech is as varied and interesting as its players. New as it is, there are already people booking game after game, building their skills, assuring you of real competition whatever your experience. And you do have a chance, even against experts. The manager told me that some experienced players lose because they are arrogant and come up against a fighter with natural talent who beats them.

As to who can play the game, anyone familiar with systems like Nintendo will feel at home, though BattleTech is obviously a much richer environment.

Its popularity seems assured. Three weeks after opening in August, the center was averaging more than 300 players a day, with no advertising! As you read this, tens of thousands of 'Mech jockeys will have dropped into those cockpits, matching their reflexes and strategy against very determined opponents. Players range from teenagers to adults out for fun. Some book parties, taking over the whole center for an hour or two.

BattleTech is not a cartridge on your Commodore 64. It's not cheap, but real gamers won't care. All they'll want to do is play! And, if you have upwards of \$800,000 to invest, you could be a franchise owner yourself. I wouldn't wait too long though, because this is going to be BIG!

And if you do open a BattleTech Center... how about letting me play free?

BattleTech Center
453 East Illinois Street
Chicago, IL 60611
(312)-836-5977

Rates:

Monday-Friday Noon-6PM
\$6.00

Monday-Thursday after 6PM
\$7.00

Friday after 6PM and all
weekend \$8.00

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QUARTERBACK

TOOLS runs on any Amiga using either the old or new filing systems, and runs with new and old Workbench versions.

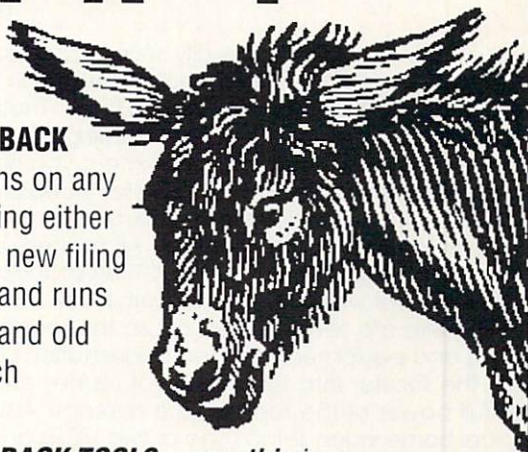
QUARTERBACK TOOLS... now this is no donkey!

And to close the barn door *before* the horse escapes, use **QUARTERBACK** the *fastest* and *easiest* hard disk backup program for the Amiga.

Other useful products from Central Coast Software:

Mac-2-Dos for transferring Macintosh files to and from the Amiga.

Dos-2-Dos for transferring MS-DOS/Atari files to and from the Amiga.



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Dealer Inquiries Welcome



TOASTER TALK

by Benn Dunnington

Nothing in the Amiga community these days seems to be causing as much excitement or as much confusion as the release of NewTek's Video Toaster. These pages are offered in hopes of adding to the former while subtracting from the latter.

The Video Toaster is really several products rolled into one, any one of which (could it be duplicated) would sell in the PC or Mac markets for more than the Toaster's list price of \$1595. These modules may be used individually or with various degrees of integration (depending to a large degree on what type of video equipment you have available). The Toaster includes a Production Switcher, Digital Video Effects Generator, Character Generator, Color Processing Engine, Dual Frame Buffers, Paint Program, 3D Modeler, and Animation System. All of these modules process 24-bit images (for 16 million colors) at full RS170A broadcast signal quality. Cool stuff to be sure, but what can you do with it all?

There are several levels of use the Toaster offers depending on your needs and equipment; a video or animation professional will only need to stick the Toaster into the middle of his/her existing system to begin using the full power of the Toaster. The average Amiga user, however, with the typical home video setup (one or two VCRs and maybe a camcorder) will not be able to do any serious video editing, titling, or even animation without additional significant hardware purchases. The Toaster (like all video switching devices) requires input signals to be synchronous, which home video gear is not (without a \$2000-\$3000 frame synchronizer). Live video from your camcorder is usable, but what you tape with it is not (unless you own the Sony V5000 shown at right). You can tape anything you like from the Toaster onto your home deck; you just can't go the other way around. Even with synced video sources you will very likely also need calibration equipment or services to get everything "tuned" to acceptable values. Want to do an animation? Again, unless you have the patience to sit by your Amiga and manually record a few frames of each of the possibly hundreds of images which will be produced over several hours or even days, you will need something you don't have: a single frame controller (\$1000 to \$5000). So what can you do with a Toaster right out of the box? Well, you can design, save, and preview 3D animations in wireframe mode, create incredibly cool hi-res overscan 16 million color static images with the 3D modeler/animation software, edit these images or paint from scratch with the paint program, do switcher effects between live camera (or LaserDisc) input and your framestored image from above, present framestore slideshows, and do character generation over your live camera or framestored image. Any of this can be recorded to your home video deck. To do more, you will need more gear. Today, that means a big dollar investment; over the coming months it will start to become reasonably affordable.

This is not really a shortcoming of the Toaster, which is unquestionably a landmark product for both the Amiga and video marketplaces. The Video Toaster has created a whole new 3rd party market that didn't exist a month ago. You can expect to see vendors in the months to come responding with a stream of low-cost products to work with the Toaster and other high-end Amiga video products. This is just the beginning, and .info will keep you informed as developments occur.

-BD



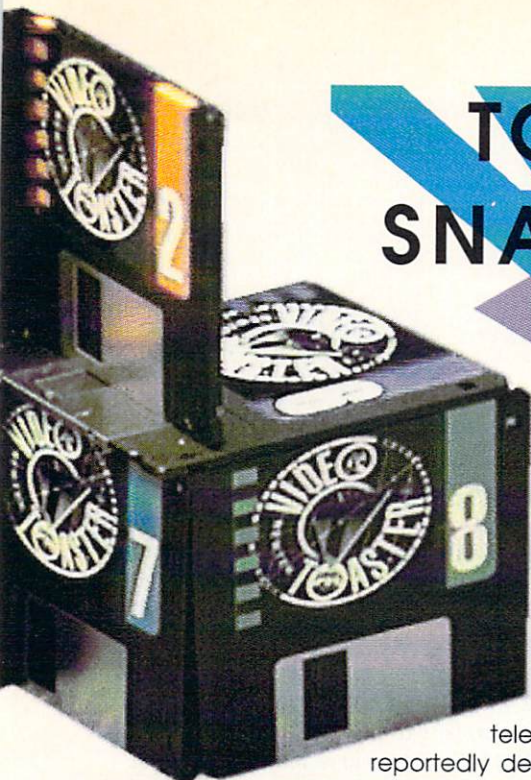
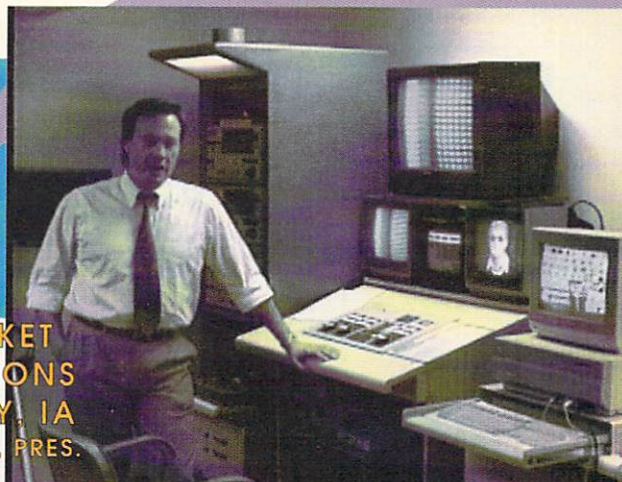
At \$2700 list, the Sony CCD-V5000 may seem pricey, but with its built-in time base corrector, this Hi-8 camcorder is currently the most economical way to get taped video into the Toaster. With Hi-Fi stereo sound and a host of dazzling digital effects, the V5000 is any videophile's dream come true! Look for a full review in the next issue...



The nation's first **Video Toaster Show** will be held Friday, Nov. 30 from 9-5 at the Minneapolis Hyatt Regency. The show is free to the public and will feature 6 free seminars and exhibits from JVC, Panasonic, NEC, Hitachi, 3rd party Amiga companies, and NewTek. For more info, call Alpha Video (612) 881-2055.

TOASTER SNAPSHOT

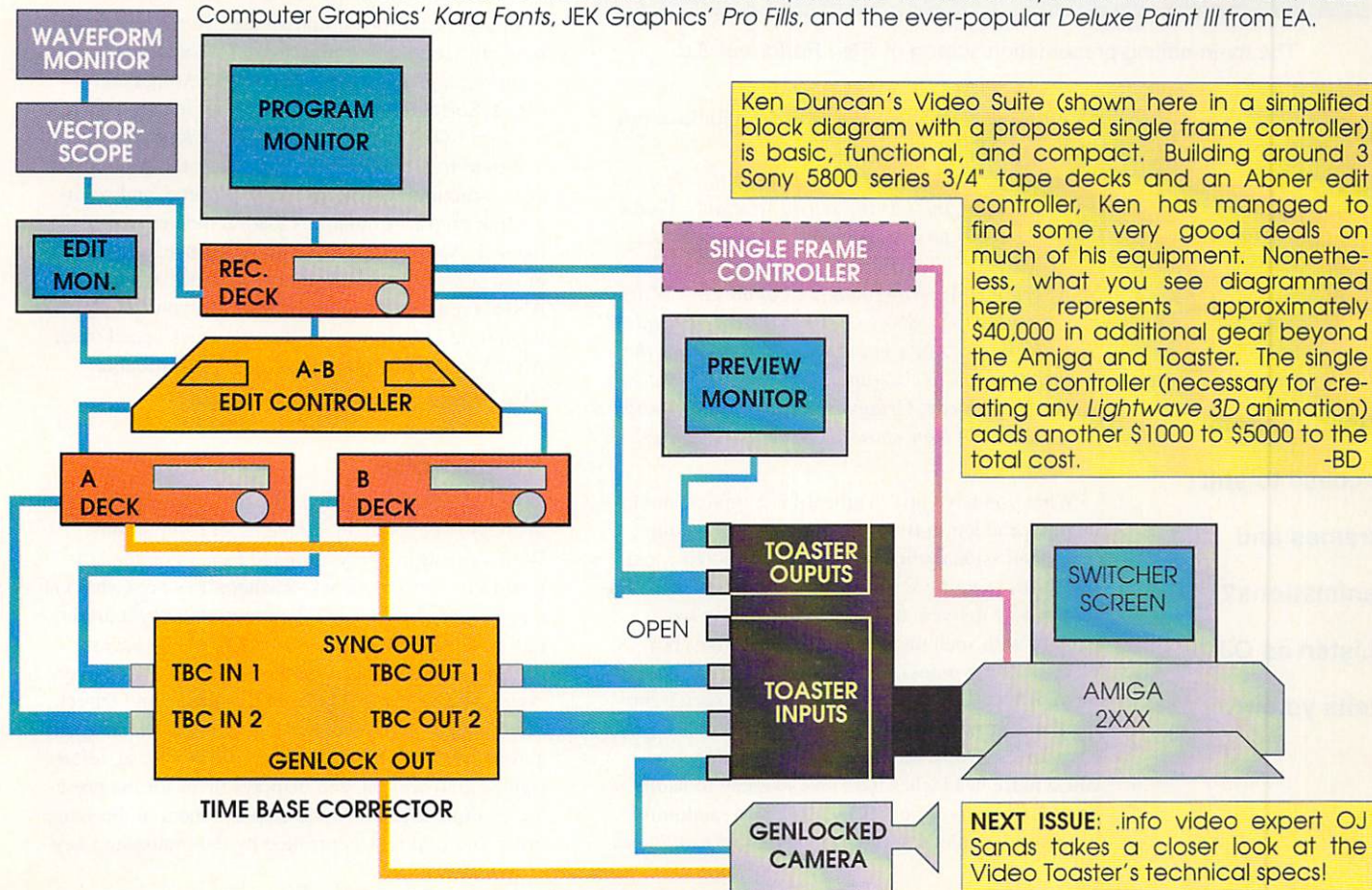
**AD-MARKET
PRODUCTIONS
IOWA CITY, IA
KEN DUNCAN, PRES.**



It's November 1st, the first thousand NewTek Video Toasters have only been in the hands of eager Amigaphiles for about three weeks, and Ken Duncan's one-man home-based advertising company, Ad-Market Productions, Inc., has already completed production of its second television ad to feature Toaster digital video effects (DVEs). The clients are reportedly delighted with the finished results, and Ken has landed six more accounts from other customers who have seen the two eye-popping spots! "It's incredible," says Duncan, slipping easily into his best tenor commercial speaking voice (Ken does most of his own studio voice-overs). "The Toaster has already paid for itself, and I haven't even had a chance to try the modeler or the paint modules yet!"

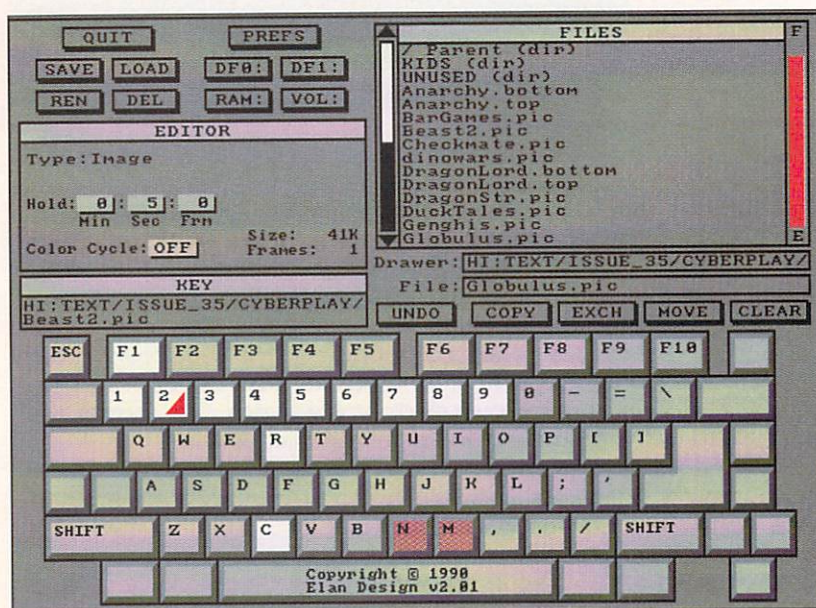
Though Duncan has been producing TV ads from his Amiga-equipped studio for the last 2 1/2 years (his clients have included everyone from McDonald's to local computer stores), he feels that the Toaster will radically change the rules of the game, allowing him to compete aggressively, delivering product near or equal the quality of established production houses more quickly and at a fraction of their cost.

In addition to the Video Toaster, Duncan also makes frequent use of Shereff Systems' *Pro Video Post*, Kara Computer Graphics' *Kara Fonts*, JEK Graphics' *Pro Fills*, and the ever-popular *Deluxe Paint III* from EA.



NEXT ISSUE: .info video expert OJ Sands takes a closer look at the Video Toaster's technical specs!

Oran J. Sands III on Video



The main editing/presentation screen of *Elan Performer 2.0*.

Sshhhhh! We're in the middle of production.

"Camera two... Loosen the shot and include the sensor assembly. Good, now tilt up a bit. Ready on Two... Take Two! Ready for his graphics. Show graphic A... Now! Ready Graphics B... Wait, he's skipping to C. Show C! What?! Now he wants B! Show B! Where's he's going with this? Where's the script? Omigod! He's going to the middle of the script. Hang loose, Graphics! Ready to show graphics Q. Show Q! Now show M! Keep up Graphics!..."

Need random
access to still
frames and
animations?
Listen as OJ
tells you how.

What you have just overheard is a typical studio lecture production from the director's viewpoint. Non-professional talent is often unpredictable and rarely sticks to the script. Even the most talented lecturer rarely delivers the same presentation twice. Coping with such uncertainty during a live show is ulcer-building unless you have the ability to be quick on your feet. Using Amiga graphics for such a production can raise production values, but unless you have a reasonable way to display them they can cause more headaches than not. The key to using graphics in a live show is the ability to randomly access the graphics. Unfortunately, most Amiga pro-

grams allow you to put together a sequence of pictures for display but do not allow you to change the sequence of display (at least not quickly).

Enter Elan Design's *Performer*, now in version 2.0 and newly WorkBench 2.0 compatible. *Elan Performer* is for live presentation purposes such as boardroom lectures, point-of-purchase sales, and any other presentation that needs the ability to select any picture or animation from a group quickly and easily. Just what the average TV studio needs.

Elan Performer will accept Amiga graphics in all the standard IFF modes and resolutions including overscan. With *EP2.0* you can also use several of the newer 24 bit formats, like the Commodore RGB24 file, Newtek's new 24 bit file, and Impulse's RGB8 and RGBN formats (none of these display in 24 bit color, of course, but are converted to HAM images for display). It will also accept and allow cueing and controlled playback of animations in ANIM OP3 and OP5 formats, RIFF, and now MOVIE format as well.

EP2 is incredibly simple to use. The user interface is a screen consisting primarily of a load/save requester and a representation of the Amiga's keyboard. Select the desired image from the requester, click on LOAD and then click on the key you wish to assign to it. A small window displays the parameters of that picture: its file type, display time, and color-cycling on/off. Animations load in the very same manner. ANIMs may be set to loop once, continuously or a prespecified number of times. Compressed ANIMs may load and decompress so you can play them in reverse if needed. The playback speed of an ANIM is not only assignable but is controllable "live" during playback.

Animations

Elan Performer really kicks butt when it comes to displaying the preloaded images and animations. With all your imagery assigned to keys on the keyboard you can keep track of where they are (which is made quite simple using the preprinted keyboard layout sheets included with the program) and access them as desired. There are three methods of display: Automatic Sequence, Manual Sequence, and Direct Play modes. Automatic Mode sequences the images automatically as they appear on the keyboard, left to right, top to bottom, and displays them for the preselected time. Manual Mode displays them in the same order, but timing is controlled by the mouse and key-

board. Direct Play mode displays images by direct keypress. Animations call up just as easily.

In fact, controlling animations is one of the *Performer's* strong points. Animations are run forward or in reverse as needed, if they are loaded as uncompressed animations, which does require more memory. You use the mouse to advance the ANIMs in either direction and to control the playback speed as well (speeds can also be preprogrammed). ANIMs may splice together or split between keys as desired. Looping ANIMs can be set to continuously loop or to loop a set number of times.

And if 101 keys aren't enough for you, *EP2* can define keys as "environments," redefining the keyboard when activated. You can have an image representing each topic and, when asked, delve further into that topic by entering that "environment," pressing the appropriate key. This will give you control of an almost infinite number of images and animations. Keys can also be doubly defined by using both the normal key and the "shifted" key as well.

ARexx Power

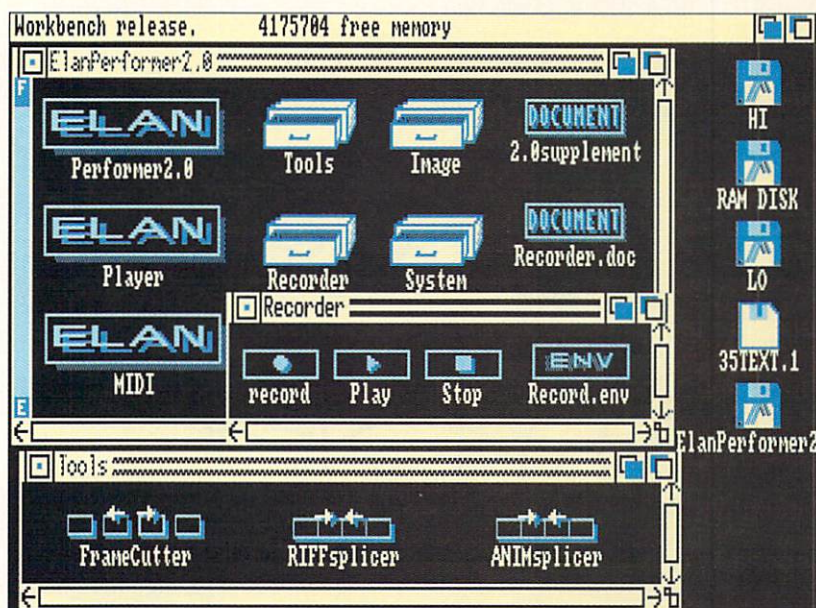
For power users, *Elan Performer 2.0* boasts a large set of ARexx commands, allowing other programs to access *EP's* graphics display power. It allows *EP* to access other programs, too. In the same vein, you'll find that *EP 2.0* ships with two new support programs, Recorder and MIDI, both programmable via ARexx. Recorder will playback your sequence of images and animations with the same order and timing that occurred in a live presentation. The MIDI program allows control of your images in synchronization with external MIDI devices such as a sequencer or MIDI instrument. (Both programs require the ARexx language written by William S. Hawes, which is not provided with *EP2*.)

Applications

Elan Performer is what I like to call a "crossover" program. By that I mean it is usable for a variety of tasks. With its ability to display ANIMs and pictures *EP2* will find itself used for many applications. The most obvious is the "live" presentation. Whether in the boardroom or in an exhibit booth, *EP2* will perform admirably, dazzling the audience with rapid-fire randomly selected imagery, directed by you.

Somewhat less obvious are its uses for television. It's the perfect answer for chaining together those graphics you need for a taping session. Why edit in each image individually when you can place them with only one edit, selecting them on the fly? What a great time saver! You can even use a picture of all Color Zero to provide a blank image through which to "see" the video (using a genlock, of course).

Don't forget to chain together your animations with *EP2* as well. Making smaller ANIMs to chain together later is a technique used by many of us with no more than 512K of chip RAM. It's particularly useful if you're animating in hi-res! ANIMs needing



Elan Performer 2.0 provides many graphics control tools, including a MIDI keyboard controller!

editing, reversal, or intermixing with still images are perfect for the *Performer*.

Another perfect but somewhat unusual use of *EP2* is for Master Control at your TV station. The master control operator controls the station breaks, commercials, newsbreaks, PSA's, etc. Our local low power TV station is using Amiga graphics for the station breaks and program bumpers. Using *EP2* allows them to access all their graphics and animations whenever they need, even if their needs change at the last minute.

The manual for the *Performer* is easy to follow and understand, and is quite accessible. Although the *Performer* is primarily a WorkBench-based program, it may be run from the CLI. The manual documents all the necessary commands to carry out the control functions you require. If *Elan Performer 2.0* has a weak spot it is that all transitions between images and animations are cuts. There are no slides, pulls, reveals, checkerboards, etc. that make up the usual set of Amiga graphics transitions. One reason for this is the annoying but necessary palette change that occurs when two dissimilar pictures try to occupy the screen at the same time. But for those of us designing graphics with identical palettes, such transitions would not only work well but would make for an attractive presentation. Perhaps a later version could offer optional transitions.

Would I use the *Performer*? I would, I have, and I will again. I use it for my own lectures as well as those of others. If being in control is your need, then *Elan Performer 2.0* is your program. It's smooth, quick, and very capable. Its animation control is rarely found in other programs. It's a program you'll find on my studio Amiga's hard drive ('nuff said).

ELAN

PERFORMER 2.0

\$149.00

(\$49.95 upgrade)

☆☆☆☆

Elan Design

PO Box 31726

San Francisco,

CA 94131

415-359-7212

Dear Santa,

I was very good
this year.

by Judith Kilbury-Cobb

Time was when all most kids wanted for Christmas was a Barbie Doll, a set of Tinker Toys, or a box of 64 Crayola crayons. In this age of electronic instant gratification, kids are much tougher to impress. Now it's "Mom, I gotta have a Nintendo!" or "Dad, I get me 'Nightmare on Sesame Street' for my GameBoy!" With all the schlocky software and gimmicky garbage out there, what's a parent to do?

When it comes to choosing quality learning programs for your kids, parents should primarily be concerned with function. Good kids' software should, at the very least, hold a child's attention and keep the little tyke occupied for an hour or so, while being somewhat more interactive than watching "Brady Bunch" reruns on cable. At best, it should reinforce or help them practice something that might even be of use to them in school. Ideally, kids software should promote creativity and enhance problem solving skills. Kids, of course, are primarily interested something altogether different, that being Fun.

Happily, for both parent and child, there are quite a few new Amiga programs available this holiday season (be your holiday Christmas, Hanukkah, or the Winter Solstice) that kids will love playing with and parents won't feel

guilty about giving them. In other words, software that is good for the little urchins! No alien blasting or orc slaying allowed. If nobody says the word e-d-u-c-a-t-i-o-n-a-l out loud, the kids might not even notice they're learning something. Sort of the way my mom use to hide cooked carrots in the smashed potatoes hoping we wouldn't notice we were eating something healthy.

MAKING A LIST AND CHECKING IT TWICE...

Tops on the list of must-have kids' software is anything from the *Where in...Is Carmen Sandiego* series by Broderbund. The first three in the series, *Where in the World...*, *Where in Europe...*, and *Where in the U.S.A...* are learning games which underscore geography awareness and problem solving skills, cleverly disguised as mystery-adventures. The idea is to catch the nefarious Carmen, who swipes national treasures for fun, by deducing where her hideout is from clues given in the course of the game. All three games come complete with a handy reference book, such as the *World Almanac and Book of Facts* which is included with *Where in the World is Carmen Sandiego*.

The most exciting and the newest of the series, *Where In Time Is Carmen Sandiego*, explores world history between 400 A.D. and the 1950s. It is packaged with the *New American Desk Encyclopedia*. In this adventure, Carmen could be hiding anywhere (or is it anywhen?) from the Dark Ages to the

Jazz Age. Using his or her trusty time machine, your child jumps from one era to another, at the same time developing a familiarity with historical events and a sense of historical perspective and continuity. And these games are great fun! They are excellent for kids in the middle primary grades (although the younger ones may need some adult assistance) through high school.

Free Spirit Software's *Barney Bear* series will be adored by younger kids. Barney Bear's adventures are recounted in *Barney Bear Goes to Space*, *Barney Bear Goes To School*, *Barney Bear Visits the Farm*, and most recently (and timely), *Barney Bear Meets Santa Claus*. Bright, colorful, attention grabbing graphics illustrate each game. Young children can easily manipulate the point-and-click interface to play counting games, alphabet games, and repeat-the-pattern sound games, or just listen to interactive stories, all without much adult participation. Each game includes a satisfying collage of animation, music, and color to stimulate young minds - great for pre-school through mid primary age children.

Also high up on the list for consideration is *My Paint*, a full featured kids' size painting program by Saddleback Graphics. Ten minutes of parental instruction is all it will take before pre-literate kids are demonstrating their artistic flair with zeal. Older ones will have no problem with the manual. Two disks of coloring book pictures all ready for colorization by your little Ted Turner are also available separately. *Alphabet*



ABOVE: Where in Time is Carmen Sandiego
FAR RIGHT: My Paint
RIGHT: Barney Bear Meets Santa Claus

Fun is terrific for kids learning their a-b-c's and *Majelix Characters* incorporates phonetics and early reading skills into the painting fun. The paint program features intuitive, easy to manipulate tools for drawing and coloring with a changeable palette of twelve colors. Sound effects and music are also included. Clicking on the sound icon while coloring the picture of the cow will cause it to "Mooo" at you. Aspiring Picassos will be enthralled for hours. And the best part? No more neon pink tempera paint on beige carpet! Terrific for pre and primary school-age kids.

Good bets for older kids are *Math Odyssey* and *World Odyssey* by Polyglot Software. *Math Odyssey* offers drill, repetition, and practice of math fundamentals. Pieces of a scrambled puzzles are revealed as a reward for correct answers. Problems are generated at random or parents can create a specific game to exercise identified weaknesses in their kid's math ability. *World Odyssey* quizzes kids on world geography, with maps focusing on states, countries, and entire regions.

Points are scored by correctly unjumbling a mixed-up map and answering questions about that specific area. Kids can create their own maps and edit questions to design their own game. Upper grade school through junior high age kids will enjoy these two.

Ready Robot Club is a new bi-monthly disk magazine, available only by subscription, especially for kids. Developed for Signs Etc. by D. Knox with parental concerns firmly in mind, *Ready Robot* comes on multiple disks and is stuffed with all original interactive stories, music, songs, appealing graphics, and learning games that will fascinate kids from kindergarten through sixth grade.

WHO'S BEEN NAUGHTY AND NICE?

The level of excellence in programs aimed at kids is higher than ever before. Look for bright graphics, interactive

action, lively music and sound, and a fun theme when choosing software for your children, and they won't be disappointed. They'll have fun learning computer literacy and developing their creativity by playing learning games; you'll get a respite from *Super Mario Brothers* and some much needed peace of mind and quiet.

KIDS SOFTWARE

Broderbund Software 17 Paul Dr. San Rafael, CA 94903 800-521-6263 *Where in Time is Carmen Sandiego?* \$49.95

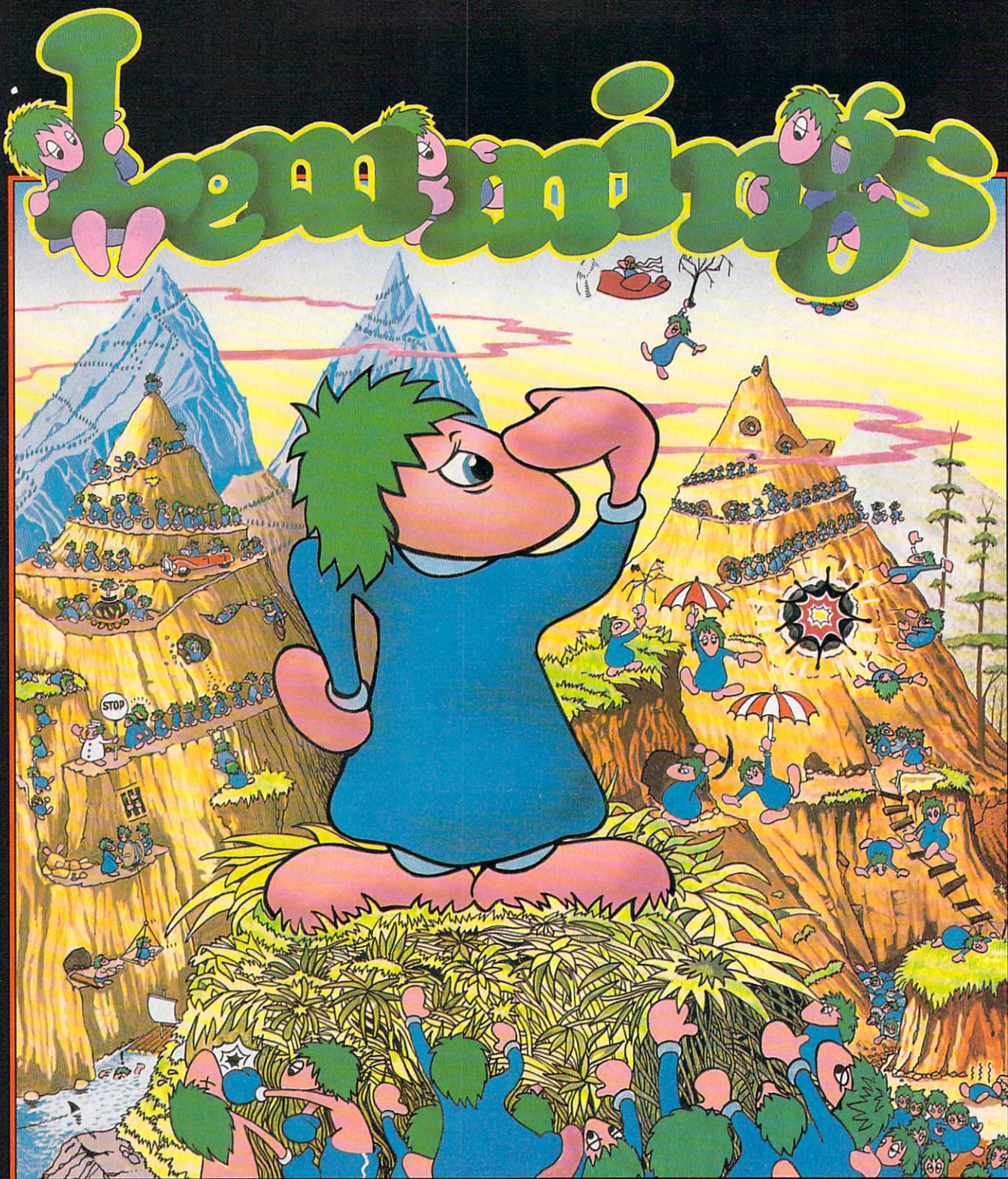
Free Spirit Software P.O. Box 128 Kutztown, PA 19530 215-683-5609 *Barney Bear* series \$34.95/ea.

Saddleback Graphics/Centaur Software 4451-B Redondo Beach Blvd. Lawndale, CA 90260 213-542-2226 *My Paint* program - \$49.95 *Alphabet Fun* and *Majelix Characters* coloring disks - \$24.95 each

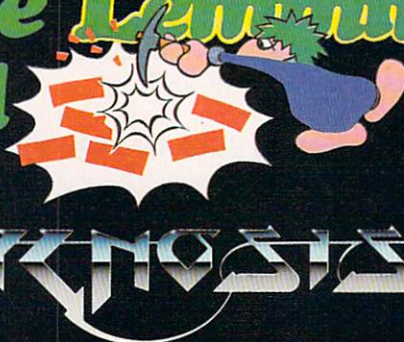
Polyglot Software/The Other Guys P.O. Box H Logan, UT 84321 801-753-7620 *Math Odyssey*, *World Odyssey* \$49.95/ea.

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It is that time of year, when Jeanne Dixon makes her predictions for the coming twelve months ("Michael Jackson will run for the Senate..."), the TV commentators evaluate the president's last 365 days in office ("All things considered, Jim, I think he was still a wimp..."), and magazine editors choose the best (fill in this blank) of the year.



You'll find that many of *.info's* Top Twenty-Five Games of 1990 are also reviewed in this issue. This isn't really too surprising, since the Holiday Season is when game companies do their best business; consequently, they often introduce their best games late in the year.

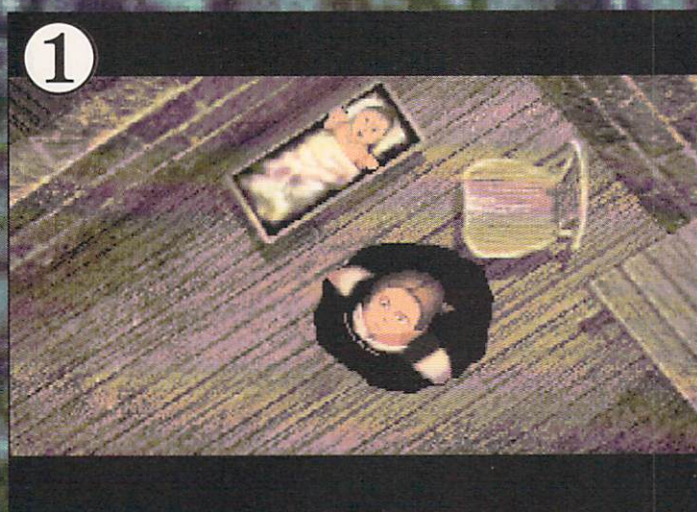
Our list is heavy with titles that make use of the Amiga's special graphics and sound capabilities. This is intentional. Though many fine games have been ported to the Amiga from MS/DOS originals, we prefer to give the laurel wreaths to those companies that are dedicated to wringing the full potential out of our favorite machine. After all, if we wanted to play MS/DOS games, we'd get

an IBM clone. Likewise with Nintendo games. NES games lack depth, mostly involving maze-running and object-grabbing. When you own a real computer, you want your games to involve a little more challenge. Though some of our favorite games appeared on other platforms first, these Amiga versions have all been properly Amiga-sized. Pay particular attention to the names of the companies behind these titles. The odds are good that once they've done one great Amiga game, other good games will follow.

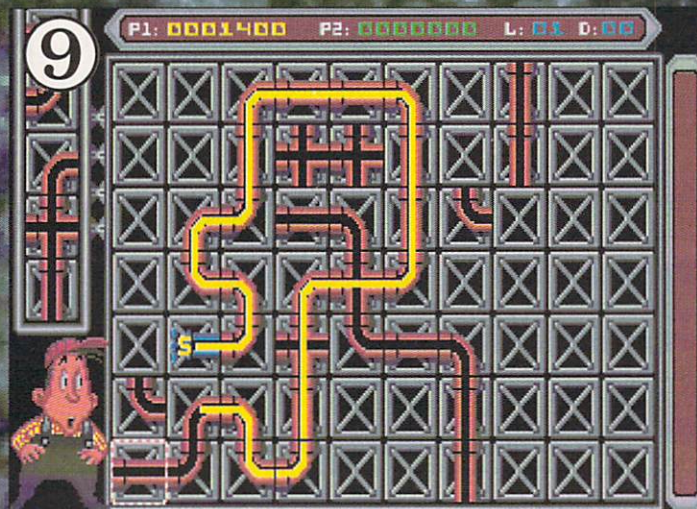
On the following pages is a gallery of *.info's* favorite games of 1990.



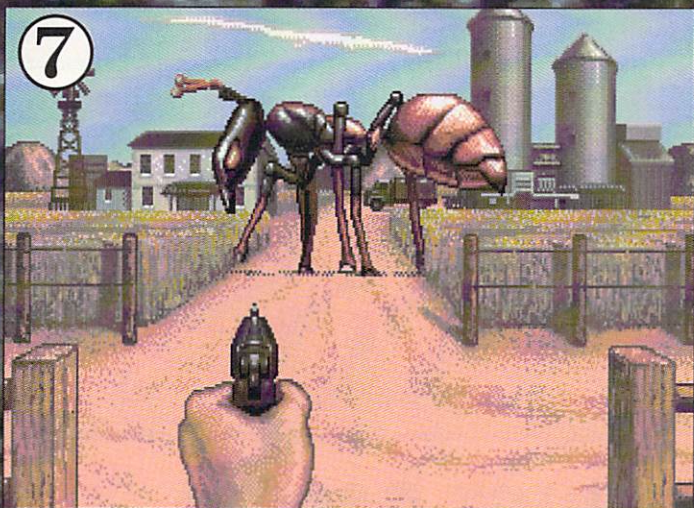
.info's Top Ten



- ❶ **Shadow of the Beast II** [*Psygnosis*] was unanimously voted our Top Game of 1990. This Great British company has consistently produced Amiga games with excellent sound and graphics and challenging gameplay. Great work!
- ❷ **Drakkhen** [*Data East*] made our list by providing colorful and realistic multi-character adventure gameplay, complete with convincing passage of time.
- ❸ **Typhoon Thompson** [*Broderbund*] features diminutive but extremely realistic animation. Highly innovative.
- ❹ **The Immortal** [*Electronic Arts*] made our list by virtue of its unique 3D perspective animation and addictive gameplay.
- ❺ **Prince of Persia** [*Broderbund*] is the second of two



Games of 1990



Broderbund titles to make our Top Ten. Excellent graphics, animation, and gameplay.

- ⑥ **BrainBlasters: Xenon II** [Spotlight/Cinemaware] features frenetic action and striking graphics. An arcade classic.
- ⑦ **It Came From the Desert** [Cinemaware] is an entertaining take-off of Fifties science fiction films.
- ⑧ **Ishido** [Accolade] is engrossing and challenging, with a highly satisfying "look and feel."
- ⑨ **Pipe Dream** [Lucasfilm] is simple enough for kids but fun enough for adults. A good "play with me, dad!" game.
- ⑩ **Bandit Kings of Ancient China** [Koei] is just one of three innovative wargames for the Amiga introduced by this new Japanese company in its first year.

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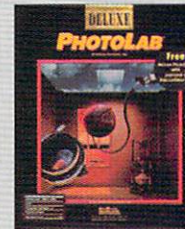
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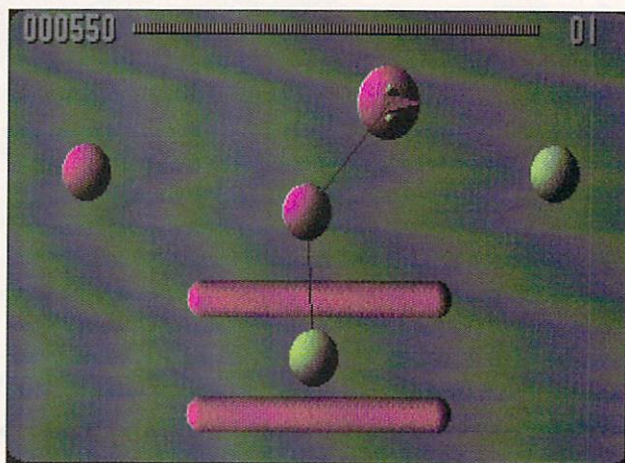
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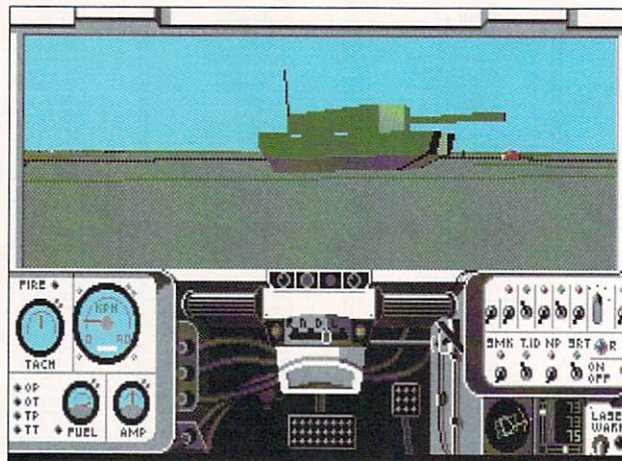
Fifteen More of the Best Games of 1990

There was no end of games we felt deserved some mention this year, but we had to content ourselves with a 'Top 25'. Here are 1990's other best games.

- 11 **Wings** [Cineware] is a unique cross between a simulator and a Cineware-trademark 'interactive movie'.
- 12 **Future Wars** [Interplay]. Graphic adventuring is maturing under Interplay's hand, and this one's plot is thoroughly engrossing.
- 13 **M1 Tank Platoon** [Microprose] is accurately detailed, and the only true simulator to make our list this year.
- 14 **Chamber of the Sci-Mutant Priestess** [Data East] is a different sort of graphic puzzle game with moody graphics and a terrific feel.
- 15 **Harmony** [Accolade] is weird and wonderful - that rare beast, a truly new and innovative game.
- 16 **Nuclear War** [New World Computing]. Somehow, New World managed to make a serious topic - nuclear war - fun!
- 17 **Battle Squadron** [Innerprise] is a great arcade shoot'em'up with tasty graphics and good gameplay - everything done just right!
- 18 **Pirates!** [Microprose] is much better than the C64 version; this adventure really works on the Amiga.



Harmony



M1TankPlatoon

- 19 **Day of the Viper** [Accolade] is tasty sci-fi maze running that hooked most everyone who played it.
- 20 **Duck Tales** [Disney] is cute but still challenging, with a lot of variety and impeccable Disney graphics.
- 21 **Neuromancer** [Interplay] is our favorite story brought competently to the Amiga screen.
- 22 **Aquanaut** [Miles Computing] is an interesting adventure with a good story and a 'Sea Hunt' theme.
- 23 **Keef the Thief** [Electronic Arts]. Humor. Humor. More humor. Three good reasons to like this entertaining adventure.
- 24 **Tunnels of Armageddon** [California Dreams] features dramatic 3D flying action that almost pulled Tom's eyeballs out.
- 25 **Colonel's Bequest** [Sierra]. It's sad in this day and age that the simple innovation of making a game's protagonist *female* is enough to set a game apart. Otherwise, a good solid Sierra game.

That's it! Those are our choices for 1990. Of course, we've still got a bit we'd like to say about games and gaming, so listen up! In the next couple of pages, we'll share some of our individual insights into the crazy world of Amiga gaming in the first year of the last decade of the Twentieth Century.

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PERSONAL .info's editors comment on

BENN'S RAMBLINGS & RAVINGS ON GAMES

In my seven plus years of publishing *.info* I have seen and played literally thousands of computer games. Here are my friendly tips to game companies for getting top consumer and editorial acceptance for their titles:

- > Always ship at least two or three copies of every game which you submit to a magazine for review. This way the Publisher can take a copy home without hacking off the Senior Editor, plus a spare is available in case Pepsi Syndrome or some other disaster should befall the original.
- > Games should, wherever possible, allow options for both solo and multiple players. Multi-machine options are also great.
- > Always allow the player the option to skip through opening and closing sequences. No matter how artistic they may be, we all get tired of them after the 213th run-through.
- > Provide some means to save or restart a game from whatever hard-fought level we dweebs may have attained.
- > Games should automatically recognize and configure for multiple drives if the user has them. Being hard-drive installable also earns extra points.
- > Many games would benefit from allowing user control of colors.
- > Always add construction and edit modes when possible.
- > Design your title to multitask (some folks like to keep a spreadsheet going in the background in case the boss walks by).
- > Keep your copy protection friendly, and leave the disk copyable. And please, no more protection based on dark paper with dark lettering! Argh!
- > Don't underestimate the value of a great sound track.
- > Don't spend big bucks licensing from celebrities and movie blockbusters if you can't follow through with decent gameplay as well!

MARK'S OPEN LETTER TO GAME PUBLISHERS

We are tired of seeing the same old games over and over again, and we think consumers are, too. Here, for free, are some great ideas that could rejuvenate gaming if only you game publishers will pay attention!

First off, we need more simulations and mind games and fewer adventures and arcade shoot'em'ups. I mean, let's face it: if you've played one adventure and one shoot'em'up, you've played 'em all. Not that you can't create good arcade games and good adventures - you just need to be a little more creative about it. Give us lots of variety. At least make them nice to look at! And how about a *reason* to be blasting all those aliens or hacking up all those monsters? How about working in the ecological consequences of all that carnage? Let's see some *depth* to these games! Make us think!

As for simulations, we've seen plenty of simulations of real-world things like race cars, airplanes, tanks, and ships, but how about simulating complex systems like economics, politics, physics, mechanics, architecture, and ecology? *Sim City* and *Balance of Power* were good starts, but let's see more.

Original mind games like *Ishido* are also good computer fodder. I'd like to see some games where you had control over the rules. Gameboard and playpiece design are also nice touches. These games should always be able to play against themselves, with statistical record-keeping so you could examine the results for insights into strategy. And mind games get us into another interesting and almost untapped gaming area: Artificial Intelligence (AI).

Opponents that learn are much more interesting than opponents that play by rote. But I don't think I've ever seen an Amiga game with an opponent that learns as it plays.

We've got lots more ideas, but the bottom line is: *Be Imaginative!* Don't just do what the other guy has done. Give gamers a real value for their money, and they'll spend lots of it on games that carry your label.

OPINIONS

the state of Amiga gaming.

TOM'S PERSONAL TOP TEN

- 1 Powermonger (beta)
- 2 Brainblasters/Xenon 2
- 3 Typhoon Thompson
- 4 Tunnels of Armageddon
- 5 It Came from the Desert
- 6 Prince of Persia
- 7 Ishido
- 8 Neuromancer
- 9 Pirates!
- 10 Nuclear War

My personal favorites of the past year aren't necessarily the best of the year, but each has some quality that keeps me coming back long after I've finished reviewing it. Above all, I seem to be into motion this year. *Typhoon Thompson* and *Tunnels of Armageddon* deliver it with smooth and fluid grace, while *Xenon 2* has some of the best vertically scrolling arcade action ever. *Day of the Viper* moves through the passages of a maze and does it very well (the game itself is no classic, but everyone I know who has played it has been hooked by it). Yes, I know *Powermonger* hasn't been released yet, but it lets you move and rotate the most interesting game display I've ever seen. You can bet on the release version appearing on my list next year. Of the remaining games, *Ishido* is the first truly innovative boardgame I've seen in years. *Prince of Persia* has wonderful animation and a terrific feel. *Neuromancer* is based on my favorite sci-fi novel and for that reason I forgive its faults. *Pirates!* not only plays very well, it gives me a great sense of swashbuckling. I like the lunacy of *Nuclear War*. *It Came from the Desert* pays homage to one of my favorite movie genres: 50's science fiction. If there's one thing that has become evident in the past year, it's that games are lightyears better than they used to be. I can hardly wait to see what's coming next.

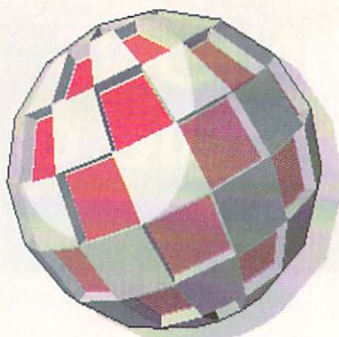
JUDITH: THE YEAR IN ADVENTURE GAMES

This was a vintage year for all varieties of adventures and genres. Many truly exceptional titles were released, from traditional role-players, through frenzied arcade action, to interactive graphics-quests, and strategic brain-teasers in abundance - more than enough to keep a reincarnated elf busy for several more lifetimes. Most of my top picks made it somewhere into the Top Twenty-Five. A few of my personal favorites didn't, attributable to my quirky tastes, no doubt. Three that didn't make it but that are worth checking out are *Hillsfar*, *Damocles*, and *The Jetsons*.

Not that I don't have a few quibbles, though. There are several things I'd like to see more of (or, in some cases, less of) in 1991. More imaginative themes is first on the agenda. Granted, Good triumphing over Evil is a universal literary device but maybe we could find a new agent for Evil. Something that truly deserves all that malevolence (say, perpetrators of environmental mayhem or the Energizer Rabbit). Wizards, a sadly misunderstood group, must be getting near the top of the Endangered Fantasy World Species list at the alarming rate they're being gleefully slaughtered. As for quest goals: No More Girlfriend Rescuing! It's insulting to the collective intelligence of women (many of whom DO play adventure games) and reinforces an outdated stereotype that girlfriends can't walk and chew gum at the same time without getting kidnapped by some lurking Evil Entity. Given a longsword and a destiny to fulfill, there's no telling what women could accomplish!

I think there's plenty of room for more adventures, and more simulations and mind games. How about more simulations and mind games within adventures, as in *Space Rogue* or *The Fool's Errand*? One of the reasons that we've seen a proliferation of adventures for PCs is that it's about the only game type that can't be done as well or better on the console game systems. But don't settle for EGA graphics, IBM non-sound, and poorly ported programs. Keep the adventures coming, but keep them entertaining, keep them original and imaginative, keep them challenging, and adventure game lovers will keep playing with their Amigas instead of selling out to Nintendo and clones.

CyberPlay

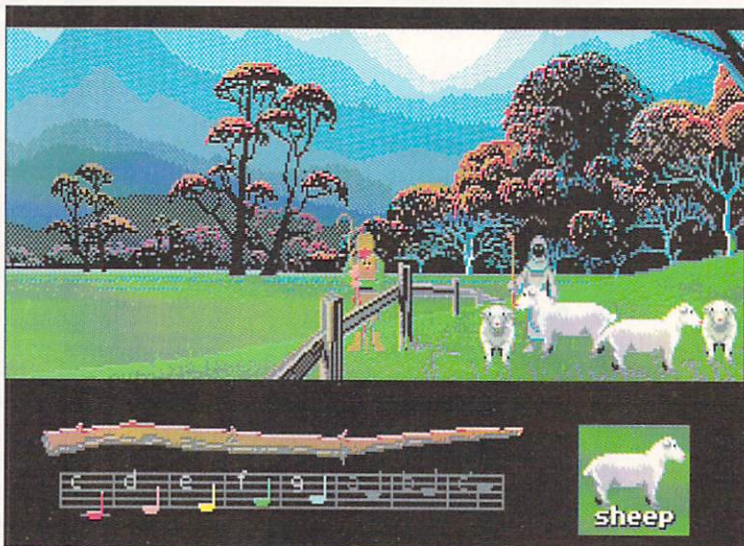


Incredible ★★★★★ Very Good ★★★★ Average ★★★ Awful ★★ Drek ★

Loom is splendidly cinematic entertainment, but that's to be expected from Lucasfilm. The plot is entertaining, if a little saccharine, but that's also to be expected from Lucasfilm. *Loom* is much less an adventure than a gentle graphic novel on disk. There aren't any substantive puzzles, nor is there any actual danger (you can't get killed off). What it does have is charm, good writing, and more charm. As Bobbin, the last of the Weaver's Guild, you go a-questing for others of your kind, who have turned into swans and flown away. You collect magical, musical 'drafts' (spells) along the way, which is the most innovative thing about the game.

So why don't I like *Loom* any better than I do? It's a straight port of the IBM version. The shoddy EGA graphics frequently come off as garish, and the animation is so bad that I felt like I was playing the game in a vat of January molasses. Characters don't so much move as swim. The music is well done, but very slow to respond, given that you're using a musical interface to control the game. If you can put up with these problems, *Loom* is richly rewarding, particularly for beginning adventurers.

- Tom Malcom



LOOM

★★★★+

Lucasfilm/EA, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171



THE IMMORTAL

★★★★★

Electronic Arts, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

Easily one of the top quests of the year, *The Immortal* is a gorgeously illustrated, beautifully orchestrated, and wonderfully animated arcade adventure. The plot is a variation on your basic rescue-the-missing-mentor theme. (What is it with mentors and girlfriends, anyway?) Mordamir has disappeared into the depths of a particularly nasty dungeon and only you can save him.

The unique three-quarter slant perspective gives realistic depth to the terrific graphics, which make use of a spectacular palette of somber browns, deep scarlets, and other moody hues. *The Immortal's* world is populated by gaggles of charmingly animated deadly denizens with which to do real-time battle. The animation is killer, with music so good that you'll actually find yourself listening to it rather than wishing you could shut it off. Games can be resumed with passwords given after every completed level.

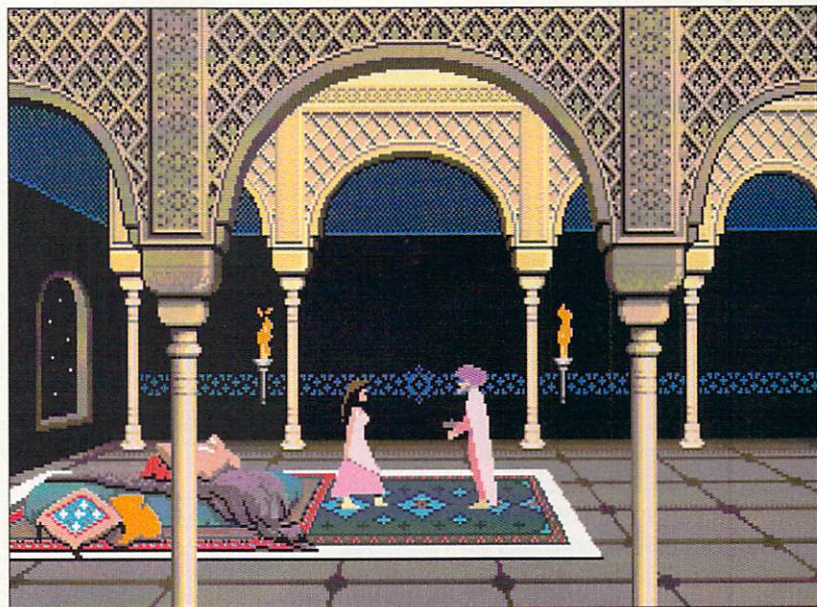
While not quite another *Dungeon Master*, *The Immortal* has enough arcade-action to keep your joystick finger constantly twitching and enough knotty puzzles to satisfy the most puristic of role-players. Resoundingly recommended!

- Judith Kilbury-Cobb

Broderbund is taking game animation to new levels and *Prince of Persia* is a prime example (their *Typhoon Thompson* is another). Going the opposite direction from the ever-larger sprites used in most arcade games, the figures are small-scale, but the animation of them is so well done, and so human-like, that they are positively alive with personality. Designer Jordan Mechner reportedly studied old swashbuckler movies to come up with the realistic motion, and the research has paid off in a game that is not only fun to play, but even more fun to watch.

The plot is standard Arabian Nights fare, with you thrown into a dungeon by an evil vizier. Your mission is to escape and rescue a princess who is held captive in a tower high above. The game itself isn't anything we haven't seen before, but the execution is exemplary. It is more puzzle-than combat-oriented, so you'll exercise your wits as much as your joystick skill. My only wish is that the backgrounds had been made a little more detailed and varied. As arcade action games go, *Prince of Persia* is certainly one of the best, if only for the animation.

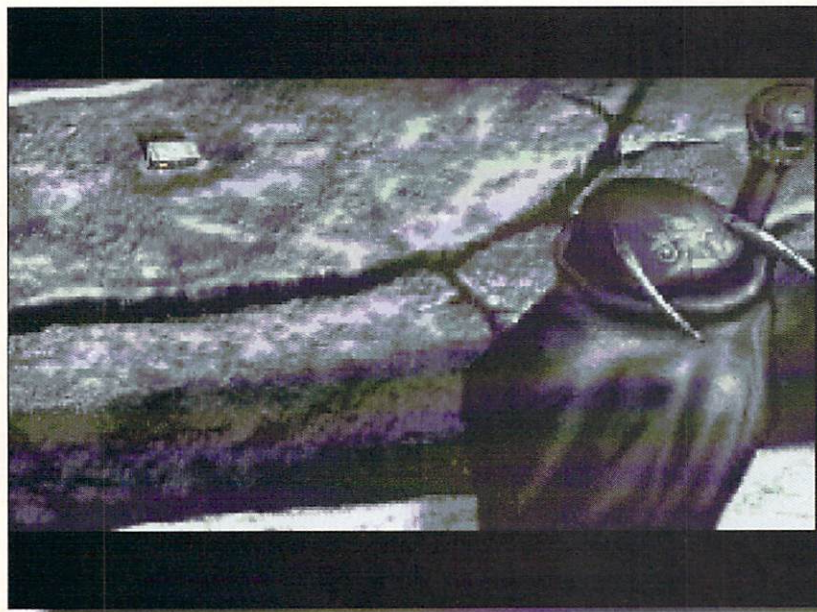
- Tom Malcom



PRINCE OF PERSIA



Broderbund, 17 Paul Drive
San Rafael, CA 94903, 415-492-3200



SHADOW OF THE BEAST II



Psygnosis, 2150 Executive Drive
Addison, IL 60101, 312-620-4444

What can I say about *Beast II* except that it's *Psygnosis* at the height of their powers. The stunning parallax scrolling of *Beast I* has been scaled back a little, but only to allow better and faster animation of the creatures populating the game. The graphics are, simply put, the best I've ever seen in any game. So is the music.

Play is, in the typical European tradition, mindbogglingly difficult and it's very easy to get killed off. There is a switch to turn off the end sequence, but I still think it takes too long to get back into the play (though at least it's quicker than in *Beast I*). The action is furious when creatures come at you, but I don't have that feeling of impossibility that struck me in *Beast I*; instead, I keep coming back for another try. Still, it will take a long time to master the game. *Psygnosis* has also added dialogue to the game and you're given various keywords and hints by the characters in it. If you only buy one arcade game this year, *Shadow of the Beast II* should be it; you'll be amazed, challenged, and delighted.

- Tom Malcom

Ishido is one of the classiest boardgames ever done on a computer. I've been playing an unreleased version of *Ishido* for nearly a year (it was originally to be published by Epyx, but fell into limbo for a while after Epyx restructured). Developed by Michael Feinberg and produced by Brad Fregger, *Ishido* is a game of placing stones of different shapes and colors on a board according to a set of rather elaborate, but simple to learn, rules. It has something of the complexity and strategic elements of chess, but is built around playing the stones in ways to garner the most points. A little taste of eastern mysticism has been wrapped around it; there's an oracle you can question.

Adding immensely to the game is that several boards and different sets of stones are included, and there's an editor to make your own stonesets. The editor allows 16 colors for stones and 16 for the boards; I'd rather not be that restricted, but I'll put up with it. All of the sets are pretty enough that if they were real, you'd have them sitting out on a coffee table to admire. I expect to see a lot more even more beautiful ones. A perfectly elegant classic.

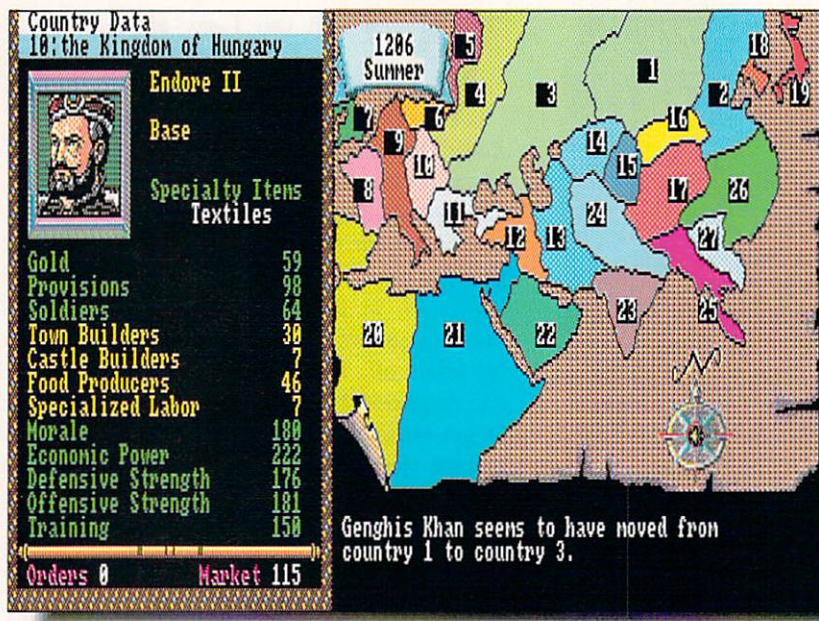
- Tom Malcom



ISHIDO



Accolade, 550 South Winchester Blvd.
San Jose, CA 95128, 408-985-1700



GENGHIS KHAN



Koei, One Bay Plaza, Suite 540
1350 Bayshore Highway, Burlingame, CA 94010, 415-348-0200

One of the most feared names in history comes alive right before your eyes in this exciting Koei wargame. Set in Twelfth Century central Asia, *Genghis Khan* recreates the Universal Ruler's unification of the Mongol tribes. It follows his efforts to build an empire that eventually stretched from Southern China, across Asia and Russia, and all the way to Eastern Europe.

In the tradition of *Bandit Kings of Ancient China* and *Romance of the Three Kingdoms*, *Genghis Khan* is a sophisticated simulation. It even has elements of role-playing - such as choosing character point-of-view - thrown in. Excellent graphics and animation, and super sound and music augment the best and easiest-to-understand wargaming game system yet devised.

After you have conquered the Mongol tribes, you can try your hand at world conquest, testing your wits against the likes of Richard the Lion-Hearted or Shogun Minamoto. This game's two scenarios (with five levels of difficulty for one to four players) should keep you happily plundering and pillaging for the next decade.

-Judith Kilbury-Cobb

Sullivan Bluth Presents

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DRAGON'S LAIR II

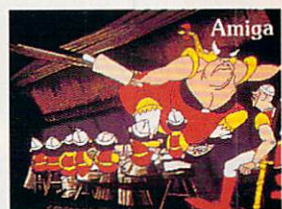


Princess Daphne has been spirited away to a wrinkle in time by the evil wizard Mordroc who plans to force her into marriage. Only you, Dirk the Daring, can save her.

Transported by a bumbling old time machine, you begin the rescue mission. But you must hurry, for once the Casket of Doom has opened, Mordroc will place the Death Ring upon Daphne's finger in marriage and she will be lost forever in the Time Warp.

Be the first to play the all new Don Bluth animated adventure! Dragon's Lair II: Time Warp features full-screen animation and digitized sound with more scenes than any previous animated adventure.

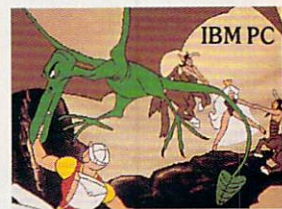
"Dragon's Lair II: Time Warp" is a trademark owned by Bluth Group, Ltd.; ©1990 Bluth Group, Ltd.; used under license from Sullivan Bluth Interactive Media, Inc.; Character Designs ©1983 Don Bluth; ©1990 all audio, visuals and concept - Sullivan Bluth Interactive Media, Inc. ALL RIGHTS RESERVED; Programming ©1990 ReadySoft Incorporated.



Amiga



Atari ST



IBM PC



Macintosh



ReadySoft Inc.

CyberPlay



DRAGON LORD



Spotlight/Cinemaware, 4165 Thousand Oaks Blvd.
Westlake Village, CA 91361, 805-495-6515

This is one of the most original strategy-adventures I've seen in a month of Moondays. *Dragon Lord* sets you the task of recovering the pieces of a magic Talisman while playing mother hen to twenty dragon eggs. No kidding, you have to hatch them. Graphics and music are killer. Spellcasting is practically a game in itself; all the ingredients and methodology involved in cooking up spells would do Wolfgang Puck proud. Gameplay, for up to three players, is complex and involving, although heavy on the strategy element. Don't miss *Dragon Lord*

- JKC



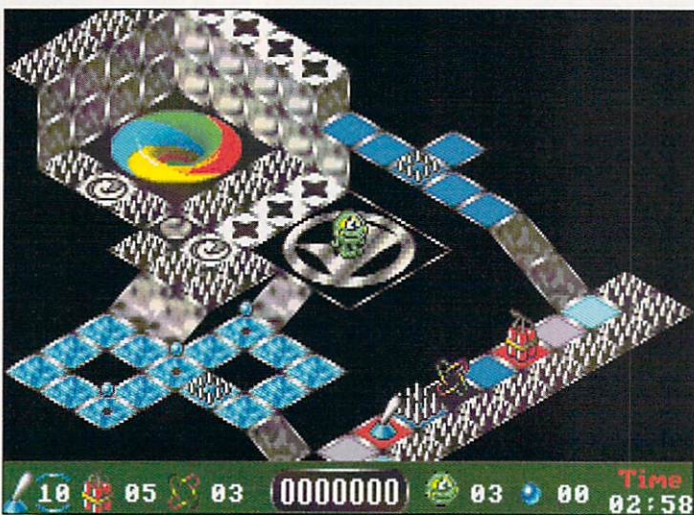
UNREAL



UBISoft / EA, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

Just once I'd like to see the princess rescue the hero. Your girlfriend has been kidnapped by the prerequisite evil entity; while recovering her (though with the alarming frequency that these ditzy females disappear, why you'd want her back is beyond me) you'll encounter stunning 2D and 3D interlace graphics, great music, and frantic gameplay. Zoom over tree tops, under arches, and through monsters on the back of your trusty dragon as the landscape screams by you in 3D perspective. The side scrolling 2D levels remind me of *The Plague*. A fast-paced arcade hack-and-shoot 'em up.

- JKC



GLOBULUS



Innerprise, 128 Cockeysville Road
Hunt Valley, MD 21030, 301-785-2266

An obsessive descendent of *Q-Bert*, this cutish game has fine graphics, fine sound and music, and some very clever twists on the theme. The animated boards are very tricky and are unique in the fact that many of them are much larger than the screen, with the scrolling done so expertly that for a long time I didn't even notice that the board was moving around. The only problem I have with it is that the passwords seem to change with each reboot and I get rather tired of playing through the first levels (I've made it as far as the 14th!). Fine playability.

- TM

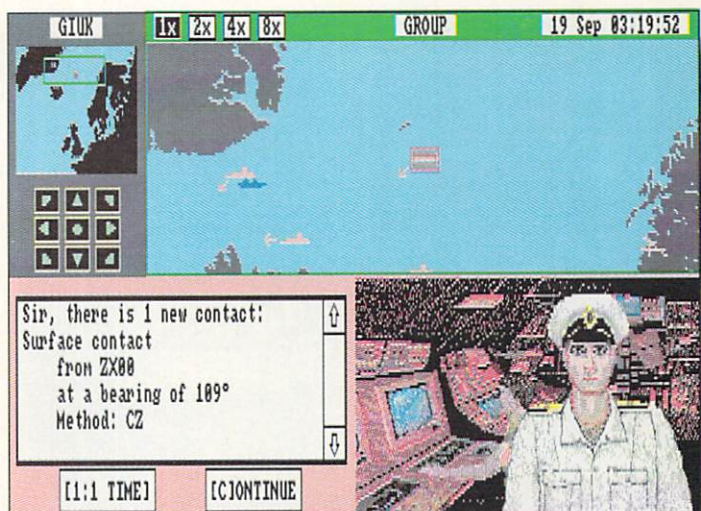
HARPOON

Preview

Three Sixty, Inc., 2105 S. Bascom Avenue, Suite 290
Campbell, CA 95008, 408-879-9144

Lauded by reviewers the MS/DOS world over and eagerly anticipated by Amiga wargamers, *Harpoon* is a military simulator that pits the mighty sea and air power of the USSR against the combined NATO forces in a simulated final showdown at sea. The early version we played with looks killer. There are lots of gadgets, read-outs, and weaponry; subs, boats and aircraft types galore; multiple scenarios for destruction; and more technical detail than any game has a right to. Look for a full review in an upcoming issue.

- JKC



SEARCH FOR THE KING

Preview

Accolade, 550 South Winchester Blvd.
San Jose, CA 95128, 408-985-1700

Designed by Steve Cartwright (with tongue firmly in cheek), *Les Manley In: Search for the King* marks Accolade's entry into graphic adventuring and has nothing to do with European royalty. The game has you as a dweebish character tracking down "the world's greatest and most elusive entertainer" - sounds suspiciously like Elvis to me. Traveling around New York, visiting a circus, and finally going to Las Vegas (where else?), the game's puzzles must be solved the way Les would go about them, which isn't necessarily the most sensible or logical, though it is certainly the funniest.

- TM



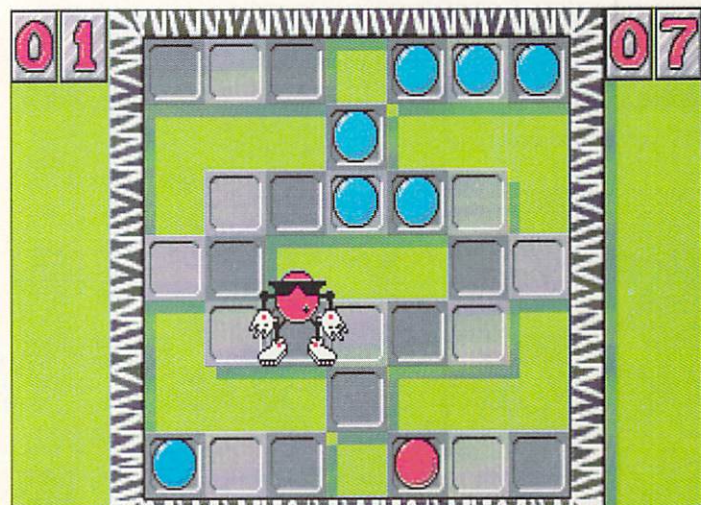
SPOT

Preview

Mastertronic, 18001 Cowen Street
Irvine, CA 92714, 714-631-1001

I have been begging Mastertronic for a beta copy of this for nearly a year and they finally took pity and let me play this still incomplete and delightfully animated variation on *Pente*. It stars the licensed red 7Up Spot, who moves the pieces in all sorts of ways, like moonwalking, roller skating, and pole vaulting. It's done fast enough that gameplay isn't slowed down at all, and the computer plays a game that's challenging. There aren't many games that make me smile every time I see them, but *Spot* is certainly one that does. Great stuff for kids and adults both.

- TM



CyberPlay



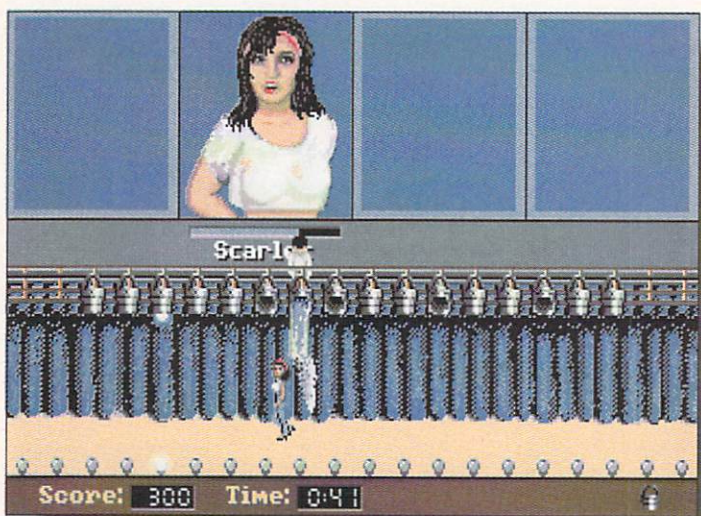
POWER PINBALL



KarmaSoft, PO Box 1034
Golden, CO 80402, 303-277-1241

Power Pinball is a good timewaster, but it still isn't the ultimate Amiga Pinball Construction Set we've been dreaming about. There are five machines included on the disk, and while I think they could have been better done, I do expect to see some interesting player-made machines after this game has been out for a while. The construction mode is workable, but has a few awkwardnesses. I'd also like to be able to have more than one set of flippers and different screen resolutions; I'm sure future revisions will have far more options. A little disappointing, but still worth playing.

- TM



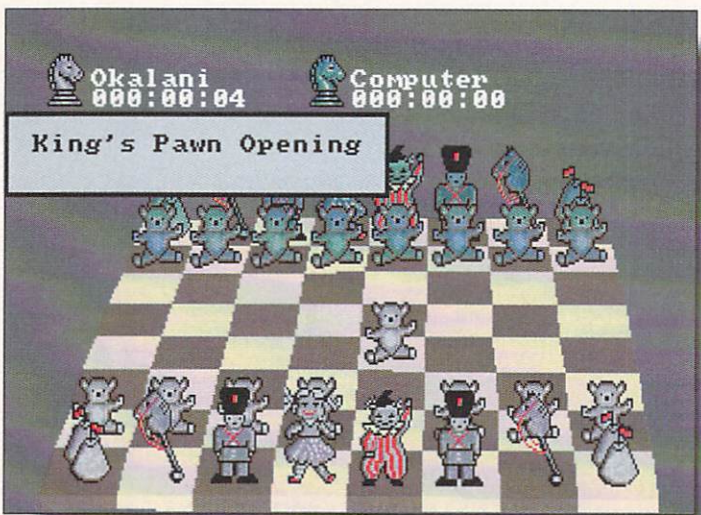
BAR GAMES



Accolade, 550 South Winchester Blvd.
San Jose, CA 95128, 408-985-1700

The most blatantly sexist game I've ever seen, I'm surprised Accolade had the nerve to publish it. The obvious appeal is to adolescent boys, and with the double-whammy allure of scanty clothing and a setting in a forbidden place, it will doubtless prove irresistible, but there's nothing here much racier than lots of cleavage - it's strictly PG-13 stuff. The five independent games, Liar's Dice, Air Hockey, Wet 'n Wild, Pick-Up Artist, and Last Call (sliding beer mugs) aren't bad, but have all the depth of Vanna White. The graphics are decent (or indecent, depending on your point of view) and the sound fine.

- TM



CHECKMATE



Interplay Productions, 1575 Corporate Drive
Costa Mesa, CA 92626, 714-549-2411

Just when you thought you'd never need another chess game, Interplay (the *Battle Chess* company) has done it again. *Checkmate* has more features than you can shake a pawn at: an exhaustive manual, fast play, ELO grading, and computer opponents from easiest simian through toughest tournament. Absolutely everything can be tweaked to your liking. You can even design your own pieces! No more sending away to the Franklin Mint for all those nifty but expensive little Civil War generals: Make your own! If you've never played chess before, or even if you consider yourself an expert, check out *Checkmate*.

- JKC

DUCK TALES



Walt Disney Computer Software
3900 West Alameda Ave., 23rd Floor
Burbank, CA 91505, 818-567-5360

Disney's *Duck Tales* is a natural for a game, and they've managed to give it the unmistakable Disney flavor. The game itself is a series of arcade sequences which you guide Scrooge McDuck and the nephews through in a quest to make Scrooge the richest, and thus Dime Magazine's Duck of the Year. The arcading, which includes vine-swinging and ledge-climbing, strikes a good balance between being easy enough to do if you practice at it, and hard enough to keep you interested. There's also an oddly educational stock-market section to it. Good authentic Disney fun. - TM

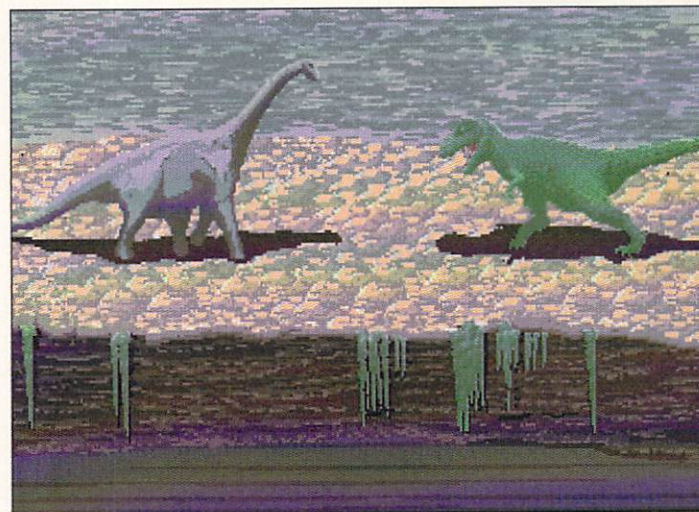


DINO-WARS



Digitek Software, 8910 North Dale Mabry, Suite 37
Tampa, FL 33614, 813-933-8023

Part strategic conflict, part arcade bite'em up, part educational game, *Dino Wars* is an interesting combination of three separate modules, tied together with a dinosaur theme. Battle encounters are animated with large, nicely-illustrated dinosaur figures, fleshed out with loud roaring and growling sound effects. Joystick control is quick and responsive. The boardgame section challenges you to recover a kidnaped dino-egg, and the animated encyclopedia will fascinate anyone interested in dinosaurs. An interesting concept, but one whose novelty unfortunately wears thin inside an afternoon or two. - JKC

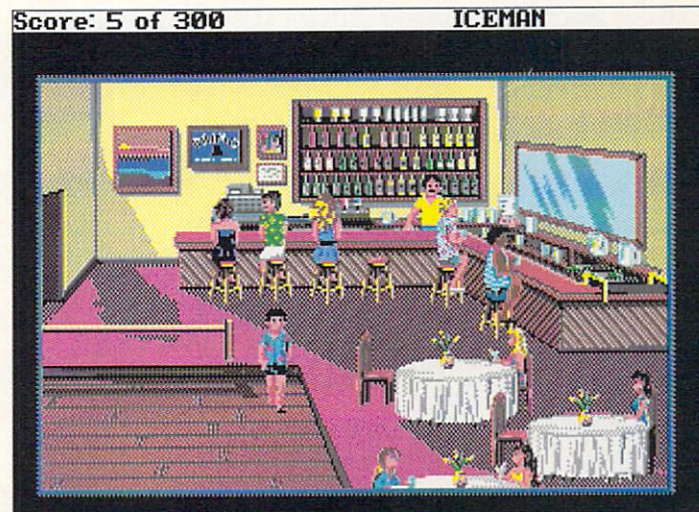


CODE-NAME: ICEMAN

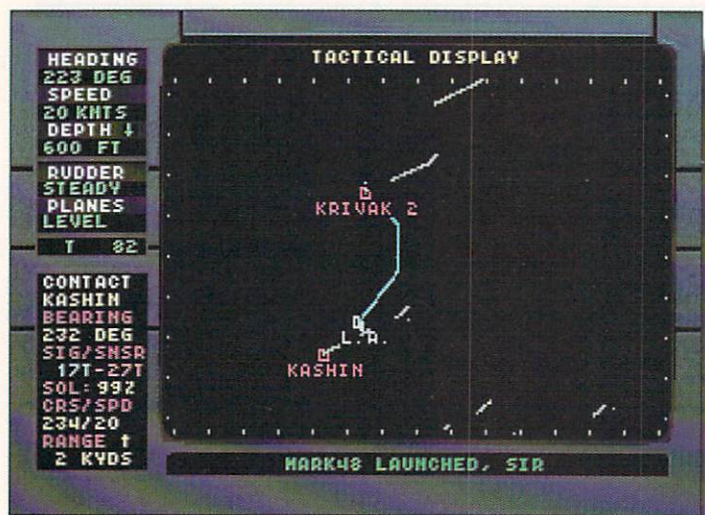


Sierra, PO Box 485
Coarsegold, CA 93614, 209-683-6858

Code-Name: Iceman, by the author of the *Police Quest* series, is a graphic adventure/submarine simulation thriller. You play a navy Commander out on a tropical holiday. Wouldn't you know that an international crisis would come along and spoil it? A world-wide oil shortage has everyone's dander up. (Is this beginning to sound familiar?) While the sub sim sequence doesn't come close to *Red Storm Rising* standards, it is fairly detailed and has lots of authentic feeling gadgets. *Iceman* has good plot, but the slow animation, slower gameplay, and poor graphics left me cold. - JKC



CyberPlay



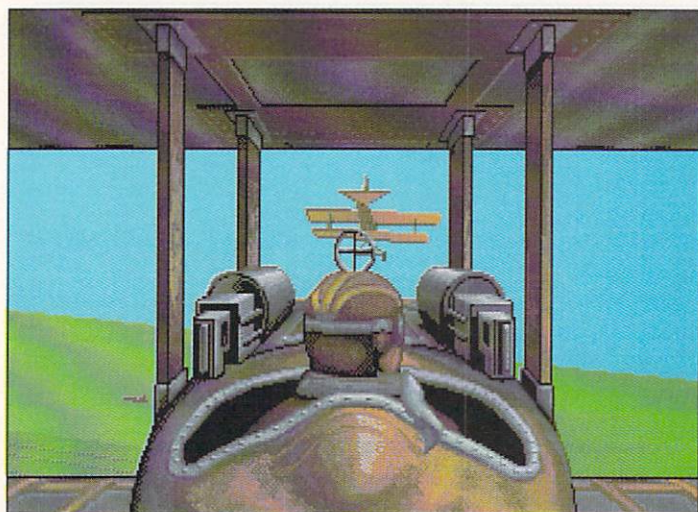
RED STORM RISING



Microprose, 180 Lakefront Drive
Hunt Valley, MD 21030, 301-771-1151

Once again, I have to give Microprose credit for making this port an Amiga game instead of a converted PC game. As a submarine warfare simulation based on Tom Clancy's bestseller, it is very detailed, very complex, and very involving. The controls are complicated to learn, but an included keyboard overlay helps immensely; I was able to start being torpedoed and sunk in a matter of minutes. The cat-and-mouse strategy required to outwit your Russian opponent will keep you coming back for another try, and the several scenarios and skill levels give the game depth. Good stuff.

- TM



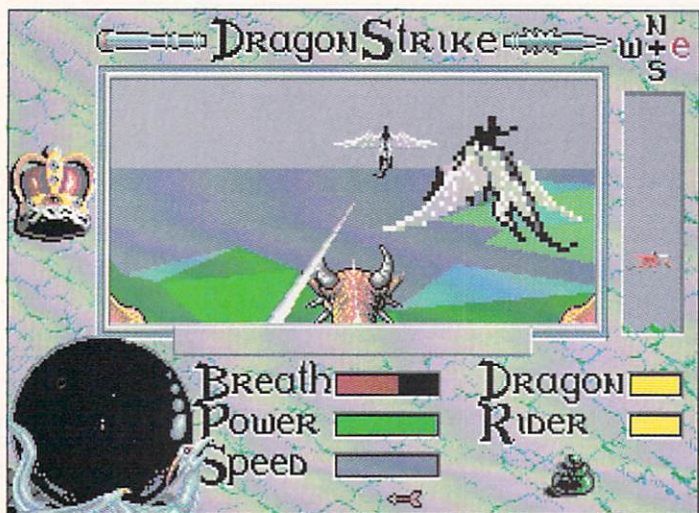
WINGS



Cinemaware / EA, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

The original *Wings* was a 1927 silent epic that won the first Academy Award. It is set during World War I, and casts you in the starring role as a flying ace doing air battle against the German Red Baron types. Cinemaware isn't calling this one of their Interactive Movies, but instead a "Personal Combat Flight Simulator" that is every bit as cinematic. It comprises a couple of very good arcade-type pilot-qualifying sequences and a terrifically flyable flight simulator. There are over fifty missions that will test every fragment of your nerve. Great Cinemaware stuff.

- TM



DRAGONSTRIKE



SSI / EA, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

Dragonstrike feels a little like a page out of *Dragon Riders of Pern* by Anne McCaffrey. The fractally generated landscapes are appealing, but sound effects are limited to a few wheezes, explosions, and death knell music. Aggravatingly ponderous animation spoils the fun of dragon riding. Twenty missions are included. A dragon combat simulator is certainly a novel idea, but so were mood rings. Unfortunately, the novelty wears off about as fast as it took a mood ring to turn your finger green.

- JKC

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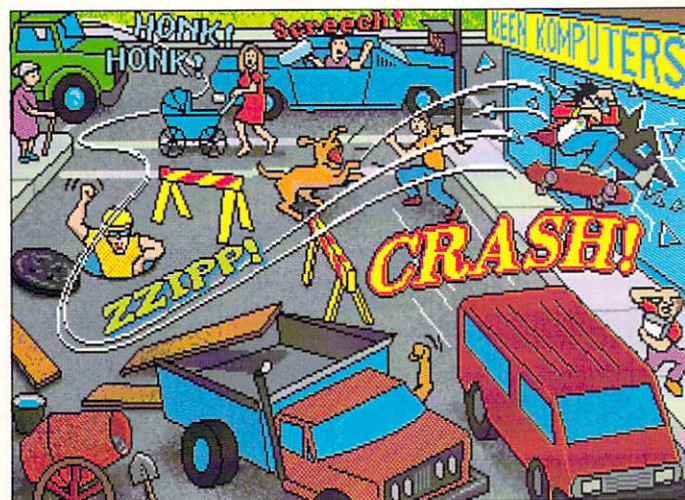
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COMING SOON

The following games have been announced by the game companies listed. Games that had been received in our offices at presstime have been marked with an asterisk (*).

Accolade: *Elvira, Mistress of the Dark, Stratego, Search for the King, Altered Destiny, Bar Games**, Jack Nicklaus Unlimited Golf, Jack Nicklaus Course Disk 3*, *Ishido**

Broderbund: *Where in Time is Carmen Sandiego**, *Prince of Persia**

Data East: *ABC's Monday Night Football, The Dream Team, Full Metal Planet*

DigiTek: *Dino Wars**, *Tie Break Tennis**

Disney: *Duck Tales**, *Arachnophobia*, *Dick Tracy*

Electronic Arts: *Magic Fly, The Immortal**, *Chuck Yeager's Advanced Flight Trainer 2.0*, *Block Racer, Indianapolis 500**, *DragonStrike** (SSI), *Second Front** (SSI), *Overrun** (SSI), *AD&D Pool of Radiance* (SSI), *Buck Rogers: Countdown to Doomsday* (SSI), *AD&D Curse of the Azure Bonds** (SSI), *Loom** (Lucasfilm), *The Secret of Monkey Island* (Lucasfilm), *Wings** (Cinemaware), *TV Sports Football II* (Cinemaware), *Dragon Lord** (Spotlight), *Arcade Fever Action Pak* (Spotlight), *Nightbreed* (Ocean), *The Untouchables* (Ocean), *The Lost Patrol* (Ocean), *Billy the Kid* (Ocean), *Battle Command* (Ocean), *B.A.T.* (UbiSoft), *Powermonger* (Bullfrog), *Pick 'N Pile* (UbiSoft)

Electronic Zoo: *Xiphos, Black Gold, Spherical, Berlin 1948, Kahlaan, Treasure Trap*

Infacto: *Overdrive**

Innerprise: *Turrican**, *Time Guardian, Aviators*

Interplay: *Checkmate**

Intracorp: *Bill & Ted's Excellent Adventure*

Karmasoft: *Power Pinball**

Koei: *Genghis Khan**, *Nobunaga's Ambition*

Konami: *Super C, Kings of the Beach*

Live Studios: *Thunderstrike*

Mastertronic: *Wonderland, Spot, Spirit of Excalibur, Super Off Road, Overlord*

Microprose: *M1 Tank Platoon**, *Railroad Tycoon*

Psynopsis: *Beast II**, *Matrix Marauders**, *Anarchy**, *Lemmings*, *Tempus, Aquaventura, The Keep, Fire Stone, Turbo Buggies, Carthage, Planet Busters, Barbarian II, Gore, Awesome, Puggsy*

Readysoft: *Wrath of the Demon,*

Dragon's Lair II: Time Warp

Sierra: *A-10 Tank Killer* (Dynamix)

Software Toolworks: *Loopz* (Mindscape)

Spectrum Holobyte: *Vette!*, *Stunt Driver, Flight of the Intruder, Tank*

Stratagem: *Terran Envoy**

Taito: *Castle Master, Day of the Pharaoh, Kiwi Kraze* (formerly titled *New Zealand Story*), *Operation Thunderbolt, Puzznic*

Three-Sixty: *Harpoon**, *Mega Fortress, The Blue Max*

GAME TIPS

Here are some secret "side doors" and "back doors" to your favorite Amiga games. Share your "secret tricks" with .info readers! Send to: .info Game Tips, 705 Highway 1 West, Iowa City, IA 52246

Drakkhen: To get bazillions of experience points, go to Prince Haaggken's castle (the one with the drawbridge that splashes you.) Make your way past the bats, past the first fireplace with the trap to the second fireplace. In front of the fireplace is a switch that activates a door two or three rooms farther on in the castle when you step on it. This door leads to a water fountain. Looking into the fountain transports you to a room filled with water that has a never ending supply of water monsters. Take your best weapon and armor with you. Set your

character on 'auto kill' and, if he or she is able to hang in there, you can leave the character in the room for several hours or all night killing off zillions of monsters. Do this for each of your characters and you'll easily be able to kill the giant dragon.

- Jon Bertrand

Beast II: For unlimited energy go right up to the first being you encounter (the guy in front of the woods.) Ask him about *ten pints*. This will activate the cheat mode and you'll have infinite energy.

- Tim Hodson

The Killing Game Show: Need a map? Boot up the game; when it tells you to 'Fire to Continue' don't press the fire button. Just hit the HELP key to see the map of level one section one. It will show you the map onscreen. Then hit the ESC key or fire button to exit map. Do the same thing on level one section two, and so on.

- Darren Grady

Thanks and a tip of the .info chapeau to Fred Selker for the following .info Game Tips.

Afterburner: While playing type *together in electric dreams*. Then try hitting the following: < to go down a level, > to go up a level, G for more missiles, T for fewer missiles, N for extra lives. Fly to the top of the screen to avoid missiles. Slow down on levels 8 and 17 to avoid rocks. Go full-speed to dodge infra-red missiles.

Clown O'Mania: During the game, press HELP for more jumps and shots. It will not register until one is used. Use as many times as you like.

Datastorm: After loading, wait for the high score screen to appear. Hit F10 to view a message.

Elite: Type *sara* as your password and hit RETURN. Get to the hacker screen by pressing * on the numeric key pad.

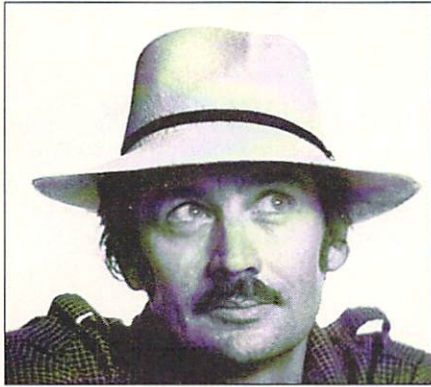


photo by Tom Ives

Adventures From France

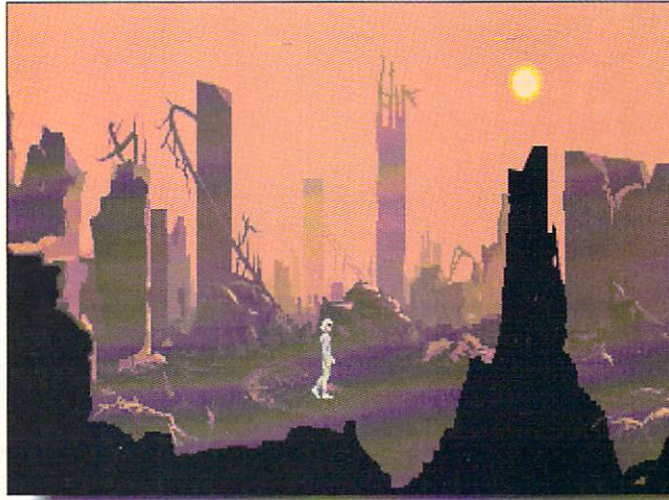
By the boatload they arrive, yet more new Amiga adventures shipped over daily from Europe. The most intriguing new immigrants hail from France. Interplay imported a single title, *Future Wars*, while the more ambitious Data East picked up a few French adventures and slapped a slick brand name - "Draconian" - on them.

Drakkhen is a multi-character quest that combines the "move your character around a room" aspect of Sierra's animated graphic adventures with the "helplessly watch your character get slaughtered by a pack of dragons" aspect ofSSI's role-playing games.

Drakkhen takes place on an imaginary island whose citizens are dragons. One of whom challenges you to recover the usual batch of magic gems in order to prevent the usual disaster from wiping out the usual... well, you see where this is going. At least the monsters and your four-member party are inventively displayed, with a sort of 3D view that shows the monsters and your party onscreen simultaneously. And the graphics and sound effects certainly render this among the best-looking Amiga quests.

But, however, and hold onto your hard-earned dollars and senses - *Drakkhen* was apparently written by someone familiar with the definition of draconian: unnecessarily harsh and cruel. Your characters get wiped out moments after you enter the first castle, then they get slain again the minute you restore a saved game, then they get clobbered just before you sail the disk out the window. It's one of those unforgiving quests in which you spend forever building up your characters. Sure, there are some neat tricks for building up your team, but nobody plays adventures to kill and be killed. So despite its pretty face and the fact that a lot of other

Shay Addams' Adventure Road



Future Wars

reviewers just love it, *Drakkhen* is a loser to anyone lacking a masochistic streak as wide as the Grand Canyon - the kind of game that will wind up on the shelf halfway through the expedition.

Data East also brought over *Psi-Mutant Priestess*, a far more intriguing graphic adventure with an interface consisting of a human brain - yours! - upon whose lobes you click to invoke various actions. Your goal, as a psychic mutant named Raven, is to rescue your girlfriend from a pack of evil mutants call protozorks (which I maintain is a twisted European pun on "Zork") and stop the demented god Zork from conquering a futuristic Earth. There's plenty of action along the way, but not the sort that demands hard-core arcade skills. Instead, you'll exercise your logical prowess to solve puzzles ranging from the simple to the simply inscrutable. Those psionic powers are often handy, for many puzzles have alternative solutions; this lends *Psi-Mutant* the air of a role-playing game without hit points to worry about. Rapid-fire animation and a one-hour time limit intensify the drama.

Future Wars takes place in the future... or was that the past? Another animated adventure with an original and quest-friendly interface, it features some of the finest artwork ever to grace an Amiga quest. The plot is more original than most time travel games

and is conveyed most imaginatively. You stumble across a time machine that propels you into the pivotal role in a war between humans and Betelgeusians - all the way from the Middle Ages to the remote future.

The artwork is *really* artwork, and the illustrations more closely resemble paintings on a wall than the cartoons we're accustomed to seeing in animated adventures. Superimposing click-on menus over the pictures, the interface is novel and intuitive (there goes that word again!). Top it off with a sound track filled with rock tunes, Gregorian chants, and digitized noises, and *Future Wars* makes the grade as an exciting new entry in the animated adventure field - my favorite this month.

One quick note: The Amiga versions of *King's Quest IV* and *Police Quest II* have shipped, both requiring a full meg.

Shay Addams, "the world's foremost expert on adventure gaming™," is the publisher of the excellent gaming newsletter *Questbusters* (\$18/yr., \$24 Canada, \$32 Int'l., PO Box 5845, Tucson, AZ 85703). He also owns more computers than you can shake a stick at, so he may occasionally mention a game he has played on the Macintosh (ick!) or even on an MS/DOS computer (retch!).

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24-BITCONF.LZH [23880/AZ]

If you're interested in the emerging 24-bit graphics products for the Amiga (and who isn't?) you'll want to grab this edited transcript of a live conference held in the Amiga Zone in July 1990. Taking questions and talking about their new 24-bit-capable hardware and software products were reps and execs from ASDG, Impulse, NewTek, Digital Creations, and Hash Enterprises.

JAMES SHOOK ART

Each issue I like to feature the work of one Amiga artist and this time it's the very talented James Shook. **STILL_LIFE.LZH** [24276/AZ], **LANTERNS.LZH** [24275/AZ], and **MARBLE.LZH** [24277/AZ] are three of his recent *Turbo Silver* raytraces. *StillLife* (shown) combines custom-made objects, IFF image mapping, and *Silver*'s built-in textures, fused to create a vignette suitable for hanging on the museum wall of your choice.

MANDELBLITZ.LZH [24322/AZ]

MandelBlitz is a new Mandelbrot set generator by Nico Francois, author of *PowerPacker*. Probably the fastest one I've seen yet, it is *very* easy to use, and fun to watch. You are given simple yet complete control over zooming, color palette, degree of calculations used, and other features.

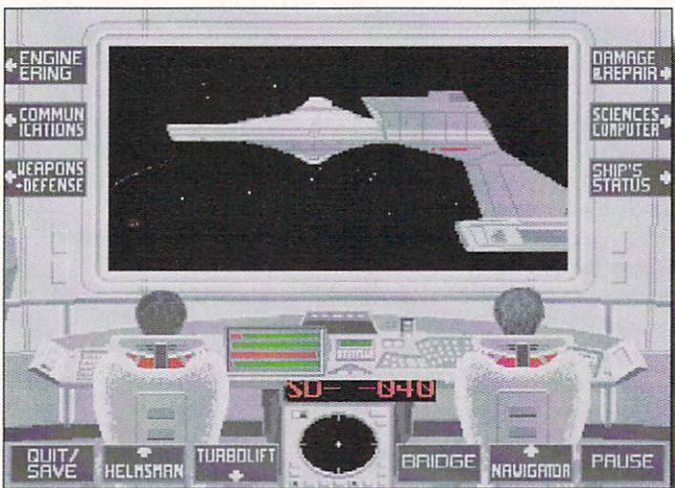
CENTURION

AmigaWorld's Lou Wallace created this full-disk, editable, playable demo to show off some of *AmigaVision*'s capabilities and give you some excellent example code as a jumping off point for your own creations. The "newspaper" front page (shown) is a clickable interface which brings up various text articles and pictures. These two files (**CENTURION1** [2294/AZPRO] and **CENTURION2** [2295/AZPRO]) should be downloaded, JOINed into a .ZIP file, and unpacked with *PKAzip*. *AmigaVision* required.

TOBIAS'S STAR TREK

This is an extraordinary new graphical *Star Trek* game by Tobias Richter of Germany. Take the Enterprise and her crew on an adventure through the galaxy. Entirely mouse controlled, this game has terrific imagery and sound effects. The turbolift zooms you to different decks on the Enterprise, and the shuttle and transporter are at your service too. Query the computer, get healed in sick bay, and blast the bad guys with phasers and photon torpedoes. Save and load games in progress. You'll need *four* files for the complete game: **TOBIAS-TREK1-1.WRP** [24631/AZ], **TOBIAS-TREK1-2.WRP** [24632/AZ], **TOBIAS-TREK2-1.WRP** [24633/AZ], and **TOBIAS-TREK2-2.WRP** [24634/AZ].

- Harv Laser [CBM*HARV]



PUBLIC DOMAIN

GENie

GENie is General Electric's commercial online information service. GENie's *Starship Amiga* software library has over 8000 files available for downloading. For information on signing up for GENie, call 800-638-9636.

BAXTER'S CLASSICS

Rob Baxter has created some fantastic classical music scores which can be played in the background as you multitask. No digitized sound is used - all the instruments have been created with *Synthia*. **AMIGADEUS.LZH** [8989] features "A Little Night Music" and the Rondo from "Horn Concerto #4" by Mozart. Bach fans will find **CLASSIX2.LZH** [8988] more to their liking as it includes Brandenburg Concerto #5, Badinerie from Suite #2 in B minor, and "Air on a G String" and Gavotte from Bach's Suite #3 in D Major, along with Pachelbel's Canon and Gigue and two pieces by Handel.

KEYMAPED11.LZH [8978]

Tim Friest has put together an excellent keymap editor (shown) for the programmer looking to implement special keyboard commands and the explorer who just wants to tinker around the edges. The documentation outlines the program's abilities and discusses the shortcomings of using modified keymaps while making a good argument against hardcoding key response modifications within programs rather than using more flexible custom keymaps.

MAC SOUNDS

Bruce Twambly's **PLAYMACK.LZH** [8992] is a CLI utility for converting Mac sound files to Amiga 8SVX format. The archive file also includes *FreqChange*, a CLI command for changing the sampling rate of a 8SVX sound file. Downloadable Mac files are usually "stuffed" as well, so you'll need **UN-SIT.ARC** [6010] (stuffed Mac files have a ".sit" suffix) to de-compress the files before converting to Amiga format.

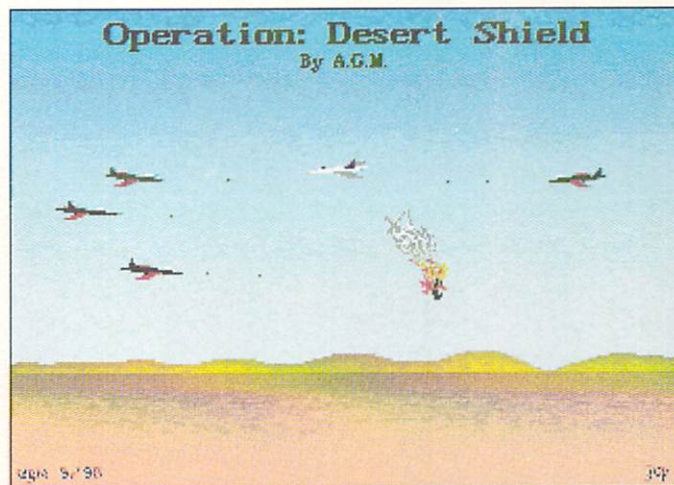
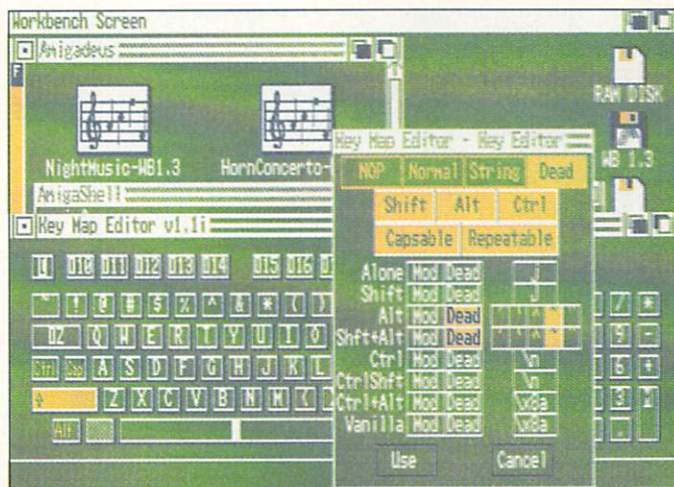
DATAFILE10.LZH [9087]

Datafile 1.0 (shown) by Mike Dissinger (\$10 shareware) is a very simple flat file database which is easy to use primarily because there are so few options. Each record is limited to 20 fields of 32 characters each, with up to 500 records per file. Datafile has modem dialing support as well as search, sort, and basic print functions.

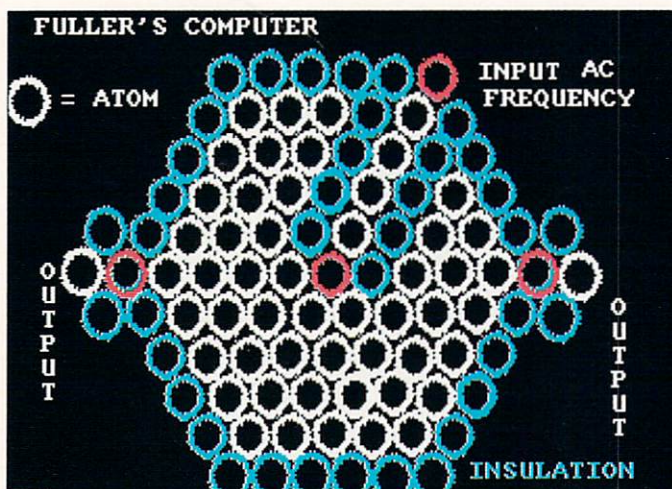
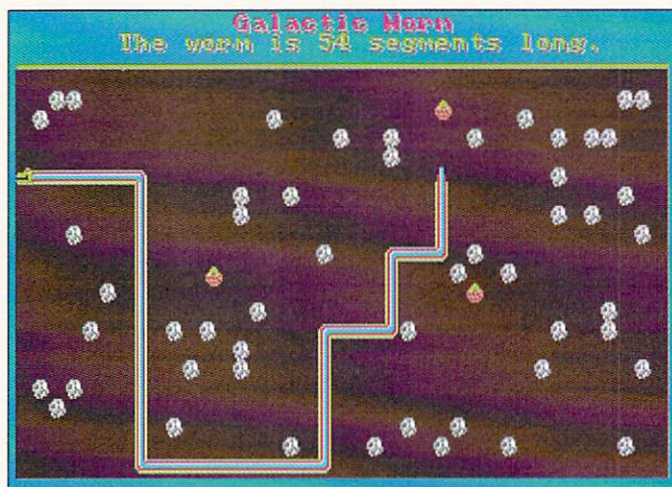
THREE GAMES

Both **MIDDLE-EAST-MADNESS.LZH** [8934] and **DESERTSHIELD.LZH** [9083] (shown) are *Shoot'em Up Construction Set* creations based (sort of) on the conflict with Iraq. In *Mania*, you are a Rambo-type grunt with an endless supply of bazooka rounds, working your way into Iraq to destroy oil wells, tanks, helicopters, planes, sheiks, and ultimately the running dog dictator Hussein himself. In *Shield* you fly a jet with the intent to do essentially the same kind of damage. **TURRICAN.LZH** [9121] is a demo for a coming commercial project that follows the spaceman-with-a-raygun runabout motif. There are some nicely crafted graphics and a fair-to-middling background music track here. But I sure wish somebody would enable the ESC key and allow for clean exits on these suckers.

- Don Romero



PUBLIC DOMAIN



DISK COLLECTIONS

SOFTWARE EXCITEMENT

Software Excitement's offerings include many programs and compilations by Terry Fike, who has devised unique opening screens complete with *ShoWiz* effects and music. He has also done many conversions of European software, some specifically produced for SE. Purchasers of SE disks may call for free technical support. And this policy may be important to you: "All digitized sounds and pictures are 'G' rated. Your children are important to us and we want you to be assured of the quality of our selections."

SE #176

Pete Kerckhoff's *GalacticWorm* (shown) has occupied my kids for weeks. The concept is simple: make your worm as long as possible by eating strawberries which each add one worm segment. Eating a rock loses one segment, and crossing over your worm body ("tying it in a knot") causes you to die. This game has an appeal similar to that of *Terris*, which also looks "easy."

SE #253

No 800K disk could contain even a small percentage of R. Buckminster Fuller's ideas. But this disk provides a slideshow of colorful graphics (example shown) which present some of his major ideas, often showing how they relate to forms in nature. This disk is a natural for science fair presentations.

SE #200

These are basically interactive test programs for spelling, states, and math. The spelling quiz speaks the words, and you can modify the list, making separate entries for correct spelling and Amiga pronunciation. The math test module is more elaborate and attractive, and includes tutorial information which the student can peruse before taking the tests.

SE #78

Peter's Quest (shown) is the answer for the youngsters in your house who love their Nintendo to death. It has the feel of NES games, is challenging, and even has voice synthesis. As Peter, your task is to collect hearts Daphne has left along 19 screens while being abducted by the bad guy. You must avoid obstacles like porcupines while searching for hidden objects useful in your quest and the final battle with her captor.

HOW TO ORDER

Here's where to buy this great stuff: Software Excitement, PO Box 5069, 6475 Crater Lake Highway, Central Point, OR 97502, 800-444-5457 (Orders only). 1-4 disks = \$7.00/each, 5-14 = \$6.00/ea, 15+ = \$5.00/ea. Packing and handling, add \$3.00 per order, shipping by best method included. MasterCard and VISA accepted. Catalog free.

- Jeff Lowenthal



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GVP Impact Series II SCSI/RAM Controller

If you are a long-time Amiga 2000 owner you've probably had the opportunity to collect a lot of internal cards to fill its slots: memory expansion, a hard disk controller, maybe even a Bridgeboard. You may have even come to realize that there are only a finite number of slots in there. What do you do when you reach that point? Look for multifunction cards to replace the cards you own. Combining two cards into one is easy nowadays, especially with the multitude of SCSI hard drive/RAM controller cards available. Recently I traded in my orphaned C. Ltd. Kronos SCSI card for the new GVP Impact Series II SCSI controller with 8 MB RAM expansion. This card freed up a drive bay and an Amiga expansion slot. (Perhaps my A2000 does have infinite space after all!)

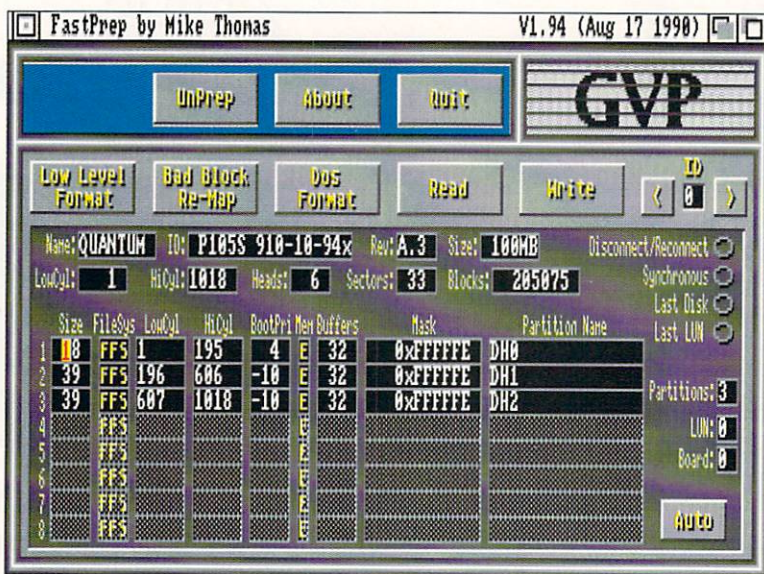
Installation

Installing the *Series II* (SII) was easy, following the simple directions provided by GVP. I only needed a phillips screwdriver to open my A2000 and mount my hard drive to the SCSI card. I plugged it in, closed up the A2000, and away I went. Total installation time was less than 15 minutes.

Much to my surprise, the drive booted right up. I had previously formatted the drive using a Microbotics *Hardframe* card. Both controllers use the same rigid disk block (RDB) standard, so there was no need to reformat. (Note that using a disk optimizing program such as *B.A.D.* does not remove autoboot capabilities on a RDB drive like it does on others.)

RAM Expansion

The SII supports more than one hard disk drive, as well as tape drives, CD-ROMs, etc. The 8 megabyte RAM expansion on the SII uses 1x8 1 MB SIMM modules that make



GVP's easy-to-use setup software

installing memory a snap. You simply plug the SIMM in (it only fits one way) and away you go. The SIMMs are also relatively inexpensive - usually around \$70-\$80 per meg.

Set Up & Documentation

The SII was simply incredible during the final stage of installation: formatting and partitioning. These two items were so easy to do using the included *FastPrep* software that I had practically nothing to do! A few mouse clicks and specifying the number of partitions I wanted made the job quick and easy. If you don't like the results you get from automatic mode you can try manual mode. Advanced users can fine tune the data or even create their own using this mode of operation.

While the SII manual was quite accurate and easy to understand, it did not give complete information about all the advanced parameters available in manual mode. A glossary of terms and some other things would make the manual mode much easier to use.

Performance

The SII performs reliably and quickly. It initially took longer to boot than my old

Kronos card, until I massaged some of the boot parameters. Then it booted quite speedily. I ran benchmarks which indicated highly competitive data access speeds. More importantly, it impressed me with quick real-world performance.

Support

Perhaps the nicest thing about the SII is the support you get. GVP's technical support people are very helpful and they return your calls as rapidly as possible. I personally got the chance to experience GVP's support effort when I needed to update the EPROM in my Quantum hard disk to get my new controller up and running. The new EPROM was sent to me via overnight UPS (at their expense, and they had no idea that I was writing a review!) Once I installed the new chip, disk drive and controller worked fine. I hope others are having the same experience I have had with GVP.

Conclusion

The Impact Series II SCSI/RAM controller is a great choice if you're looking to free up a slot by combining a RAM expansion and SCSI controller in one slot. Its easy installation and setup makes it a very good choice for beginners. The Impact Series II would make a marvelous addition to anyone's expansion card collection. I'm glad I made the upgrade.

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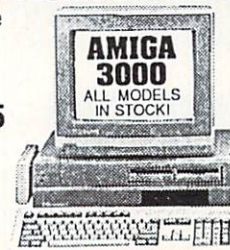
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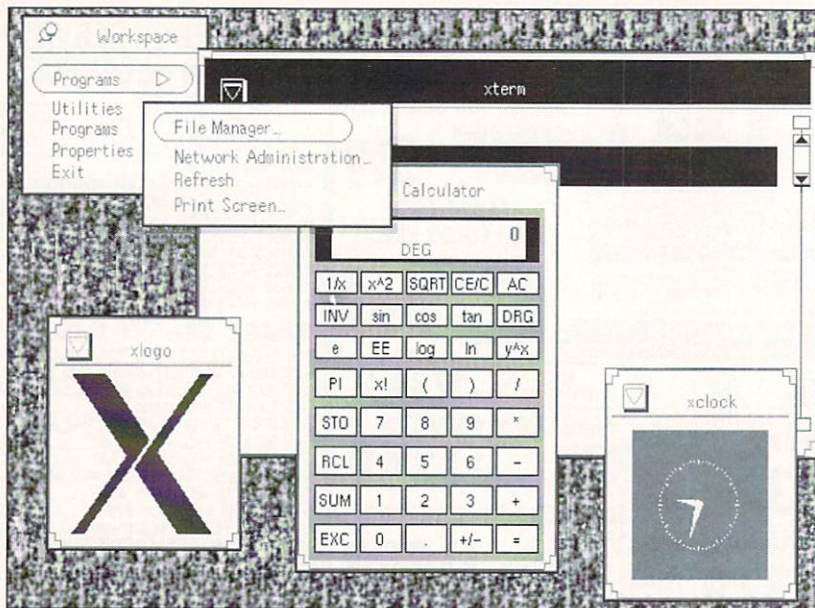
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UNIX On The AMIGA



A beta version of *Open Look* for Amiga UNIX.

.info takes a
preliminary look
at UNIX on the
Amiga.

In August, MicroSearch of Houston hosted a showing of Commodore's UNIX operating system for the Amiga. The demonstration, hosted by Stephen Sindors of MicroSearch, was directed mainly to NASA employees. In addition to UNIX, Commodore representatives Dave Bruss and Kathleen Kerndt of the Federal Systems Group also displayed Amiga 3000 systems, *AmigaVision*, and networking solutions for Amiga computers. The following is a summary of the information presented. As UNIX on the Amiga is currently in its beta testing cycle, the specifications mentioned here may change before Commodore's next showing of UNIX, planned for the Fall Comdex Show. We'll update you in our Comdex report next issue.

Multienvironment Computing

The "Three Ms" of Amiga power computing are: multimedia, multitasking, and multienvironment. The first two terms are in common usage, but it's multienvironment capabilities - the ability to run software created for more than one computing platform - that make the Amiga a truly powerful professional computer. If you own a Bridgeboard or ReadySoft's *AMax II* Macintosh emulator, then you're already into "multienvironment" computing. A multiple environment gives the user the

benefit of a larger software base while providing compatibility with existing or planned systems and networks. UNIX is the latest operating system to be added to the Amiga's menu of available computing environments. Commodore's UNIX product is based on AT&T's UNIX System V (that's a Roman numeral "5") Release 4, the very latest incarnation of UNIX.

UNIX In General

An operating system is a control program for a computer - it allocates computer resources and schedules tasks. (This job is generally done on the Amiga by AmigaDOS, which is the generic name for a conglomeration of low-level code in KickStart and control programs in WorkBench.) UNIX is simply the most successful of several multitasking, multiuser operating systems developed by AT&T. Some think of UNIX as a total programming philosophy, the main tenet of which involves the relationships between programs rather than the programs themselves. The UNIX environment encourages you to take existing programs and combine them to make new, more useful programs. If you understand this simple idea, you have found the key to "thinking UNIX."

Look and Feel

The most important feature of UNIX is the shell (or UNIX command interpreter), which is a text-oriented command line interface similar to the Amiga's shell. But the shell is not the only way to interact with the UNIX system. Users can also choose among standard window and menu systems like *XWindows* or *Open Look*, which act as "front ends" to UNIX just as WorkBench acts as a front end to AmigaDOS. Users can even design their own interfaces. The shell interface was not designed to be used by everyone, but was designed for programmer-users. Almost all UNIX shell commands require some creativity and programming. The shell can be very powerful, but it can also be very cumbersome to the novice user.

UNIX is a conglomeration of varied and useful utilities and programs, many of which are similar to those included in the WorkBench C, System, and Utilities directories. Some representative UNIX features include advanced electronic mail (mail and mailx), screen oriented editors (vi and ed), delayed execution of jobs (at), etc. For more information on the features of UNIX look for books about UNIX at your local library or bookstore.

Like AmigaDOS, UNIX is multitasking. While not

the first interactive multiuser operating system, UNIX took advantages developed within other operating systems as its own. It includes two major improvements over the single user batch systems which were being used when UNIX was being developed: it allows more than one person to use the computer at the same time (multiprocessing), and it allows a person to communicate directly with the computer via a terminal (interactive processing). The result gives researchers a set of modern computing tools to help them in project development. These tools allow a group of people to work together sharing programs and data needed to complete a project.

While UNIX has its advantages, some users find it cryptic, unfriendly, terse, and unforgiving. It's improving and becoming more user-friendly, but don't expect it to be as easy to use as AmigaDOS overnight.

UNIX and The Amiga

Information about UNIX for the Amiga is still scarce. What follows is some of the information I was able to gather at the show about Amiga UNIX.

Amiga UNIX offers true UNIX portability and will use industry standards which form the basis of UNIX System V Release 4 (which is a complete superset of both UNIX System V Release 3.2 and MicroSoft Xenix; It also implements the majority of BSD 4.2/4.3 and Sun SunOS commands and system calls). If released on schedule (our information says March is likely) then Commodore may have the first working implementation of UNIX System V Release 4, a major coup considering the competition in this field. During the product development phase, UNIX users will be able to take a program written in C from one environment and recompile it under Amiga UNIX with no problems. The recompiled program will run perfectly under Amiga UNIX.

During the show, Commodore demonstrated a version of *Open Look* running as the interface to Amiga UNIX. The hardware consisted of an Amiga 3000/UX computer with 25 MHZ 68030 CPU, 8 MB RAM, 100 Megabyte hard disk, A2024 monitor, and a standard Amiga floppy drive. (A high density floppy with 1.44 MB capacity is promised to come standard on all Amiga 3000/UX machines at a future date).

Due to the beta nature of the software demoed, I observed several problems with UNIX during the demonstration. At times it appeared to run slowly and it did crash several times, often going out to lunch at the click of a mousebutton. That's life when using betaware, however, so I was not too surprised. I expect the version to be shown

TENTATIVE A3000/UX SYSTEM SPECIFICATIONS

- ⇒ Amiga 3000 25 MHz computer
- ⇒ 5 MB RAM (1 MB Chip RAM, 4 MB Fast RAM) or 9 MB RAM for *Open Look*, expandable to 16 MB Fast RAM on the motherboard (1 Gigabyte address space)
- ⇒ 100 MB, 19 ms Quantum hard disk drive
- ⇒ One built-in 880K 3.5" disk drive (Optional 1.44 MB drive available later)
- ⇒ OPERATING SYSTEMS: UNIX System V Release 4 (SVr4), *XWindows*, *Open Look*, *TCP/IP*, *NFS*, *AT&T C* compiler, *AmigaDOS* 2.0
- ⇒ AVAILABLE ADD-INS INCLUDE: 286 AT Bridgeboard, Ethernet board
- ⇒ MASS STORAGE: External SCSI Tape Drive DC 600 format
- ⇒ DOCUMENTATION: Standard A3000 texts and several small texts about UNIX. Complete UNIX documentation is available at bookstores for roughly \$500.00, and UNIX includes its own documentation "online" at any UNIX terminal, included with the 70 MB of UNIX operating system data.

at Comdex to be much more stable. The demo version I saw could not run concurrently with AmigaDOS, though that could change in some future version.

On any system, UNIX is a memory hog (not to mention that it loves big hard disk drives). I was told that Amiga UNIX needs a minimum of four megabytes of RAM to run, while the *Open Look* interface requires 8 MB minimum. *Open Look* looks good, but operates much more slowly than AmigaDOS, as neither UNIX nor *Open Look* makes use of the Amiga's blitter. This is due to a philosophical decision Commodore has made. The idea is to make program code non-machine dependent, so that programs developed for any 68000-based UNIX platform can run on the Amiga UNIX system and vice-versa. It's a compatibility vs. speed tradeoff that may pay off in the long run by getting Amiga UNIX systems integrated into more workplaces.

A version of *Motif* is also supposed to be in beta testing, but was not displayed at the show.

Upgrading a 2000

Amiga 2000 owners will also be offered the option of upgrading to UNIX, but it won't be inexpensive. In order to run UNIX on an Amiga 2000 you'll need at least one of the following: A2630 accelerator card or GVP 3001 accelerator, a high capacity hard drive of at least 100 to 200 MB, and possibly a tape drive. Tape will probably be the means by which Amiga UNIX will be distributed. This is because the entire UNIX operating system requires 70 MB of disk storage. (Can you imagine installing UNIX using floppies?)

Pricing of UNIX and the Amiga 3000/UX (A3000 bundled with UNIX) was not available at the show. Commodore's official announcement of UNIX will occur at the UNIForum Show in Dallas in January. Look

for delivery of UNIX three months after its official announcement, or about March, barring further delays.

UNIX The Future

The future of UNIX looks good. It has gained wide industry acceptance and is used in a variety of environments. Businesses, scientists and schools are finding a variety of uses for the UNIX operating system. UNIX shows every sign of becoming the computing industry standard. By offering UNIX on the Amiga, Commodore opens up a whole world of opportunities to Amiga users, developers, and Commodore itself. Summing it all up is simple; just read the slipcover that Commodore uses for its sales brochures: "Look at Commodore Now." I'm looking, and what I see is a Commodore heading in the right direction.



UNIX RELATED PRODUCTS

XWindow System V11.3

(Runs under AmigaDOS, compatible with UNIX XWindow networks)

GfxBase, 1881 Ellwell Dr.,
Milpitas CA 95035, 408-262-1469

AS225	TCP/IP Network Communications Software
C1950	Color Multiscan Monitor
A2065	Ethernet Network Interface
AS250	AmigaVision Authoring System
A3000	Amiga Computer
A2500/30	Amiga Computer

Commodore Business Machines,
1200 Wilson Drive, West Chester PA
19380, 215-431-9100

This time, *.info* Technical Support presents the second in a series of three articles by David Martin on how to manage your hard disk; Tech Editor Chris Zamara introduces you to AmigaDOS scripts and IconX; Michal Todorovic examines the RAD: disk; and Tech Editor Nick Sullivan presents part 2 of our series for beginning programmers.

HARD DISK MANAGEMENT PART 2 by David Martin

Knowledge is power, and learning how to use your hard disk drive effectively will help you manage its data better. This month's article looks at three of the most important concerns in hard disk management: partitions, directories, and files. Learning about these three items and knowing how to handle them will make managing your hard disk drive a snap.

Partitions

Hard disk partitions are set up during the formatting process. They are usually easily created during low-level formatting, which is done using the installation software provided with your hard disk's interface. This is done before doing a standard AmigaDOS format.

The partition utility produces a mountlist entry, which is added to the *Mountlist* file in the AmigaDOS 'Devs' directory found on your Workbench disk. (For an explanation of mountlist entries, refer to the AmigaDOS 1.3 documentation.)

Partitions make larger hard disks easier to manage by helping you to better organize your files. They can also provide valuable backup space. For example, I own a Quantum 105 megabyte hard disk that I have par-

titioned like so:

Logical Device/Size	Purpose
DH0: 19 Meg	WorkBench
DH1: 40 Meg	Application Software
DH2: 40 Meg	Backup/Work Disk

By partitioning the larger hard disk into smaller 'logical devices' I benefit in the following ways:

- Partitions act like separate AmigaDOS hard drives, so I have three drives instead of one.
- Application programs are on their own separate hard drive, making them more manageable.
- Workbench and its support files are in one easy-to-manage space.
- I have a partition for partial backups and a place to store data temporarily. For example, current projects I am working on (like this article) are stored on DH2:.
- Partitioning makes backups easier to do (we'll talk more about that in part three next month).

Keep in mind that partitions can act like dividers. In my example, I divided my hard disk into three logical devices: Workbench, Application, and Data/Backup. Now I can place programs and data that fit those criteria in the appropriate section. The divisions

Table 2.1
EXAMPLE SUBDIRECTORY NAMES

Directory Name	Purpose
WordProcessing	Wordprocessing programs
DataBases	Database programs
DesktopPub	Desktop Publishing programs
SpreadSheets	Spreadsheet programs
Telecom	Terminal programs
Graphics	Animation and Paint programs
DiskTools	Disk Utility programs
Programming	Compiler programs

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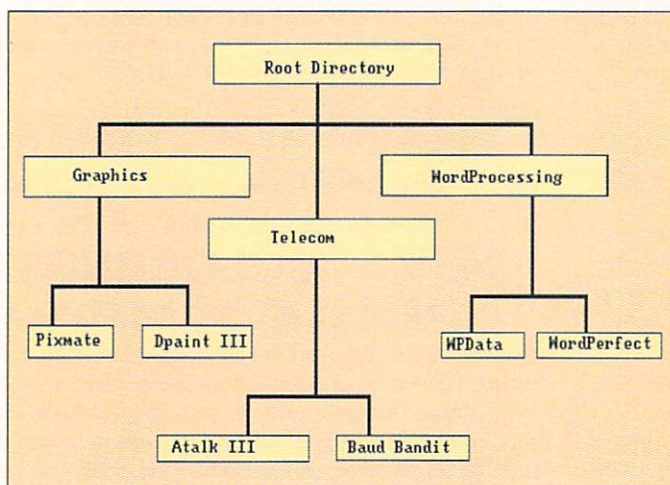
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Figure 1:
Example
Directory
Planning



are rather large, so I further manage data in each of them by using AmigaDOS directories.

Directories

While a hard disk is large, you can still treat it as if it were a floppy diskette, using the AmigaDOS directory commands to create, change, and remove directories. Other AmigaDOS file commands are used to copy, erase, rename, and manipulate your files or directories. The AmigaDOS *DiskCopy* command (and a few others) will not work with a hard disk because it is specifically designed to work only with entire diskettes that are exactly the same size.

The AmigaDOS file system is layered; a directory can contain not only files but also other directories, which are called *subdirectories*. These subdirectories, in turn, can contain either files or more subdirectories, creating a structure of directories within directories. Because a drawing of this hierarchical file organization looks like an upside-down tree, it is sometimes referred to as a tree-structured file system.

When AmigaDOS formats a disk, it creates a directory called the root directory. For example, the root directory of drive DH0: is identified as DH0:. You can get all the way down to the root directory from within any subdirectory on DH0: by typing:

CD :

To move down a level from a higher subdirectory level you would type:

CD /

The root directory holds an unlimited number of entries and is only limited by the size of the disk. However, it's a good idea not to put a lot of unnecessary files in the root

directory of your hard disk. By limiting yourself to a few files in the root directory you can keep better track of the data being stored on the disk.

Like the root directory, a subdirectory can hold any number of files and other directories, limited only by disk space. Therefore,

any number of the files in the root directory can be subdirectories that, in turn, can contain any number of files themselves.

Within the labyrinth of subdirectories, AmigaDOS identifies each file by its path name: the file name itself, preceded by the list of directory names, starting with the root or logical device name that leads to the directory containing the file. Each directory name is separated from the others by a forward slash, /. For example, suppose the root directory of DH1: contained a directory named 'WP', which contained a directory named 'WPDdocuments', which contained a file named 'Part2.ASCII'; its path name would be:

DH1:WP/WPDdocuments/ Part2.ASCII

Because AmigaDOS keeps track of files by their path and file names, you can give files in different directories the same name. For example, the file 'HardDiskPart2.ASCII' could exist in directories called 'WPDdocuments' and 'WPBackups' with no problems, but could not occur twice in the same directory.

Table 2.2
AMIGADOS COMMANDS FOR DISK MANAGEMENT

Assign	assign device name to pathname
CD	change directory
Copy	copy file
Delete	delete file
Diskcopy	copy entire floppy disk
Dir	list directory
Protect	change file protection bits
FileNote	add comment to file
Format	erase disk and prepare for use
Info	list disk information
Install	make floppy disk bootable
List	list file attributes
Lock	write protect hard drive partition
MakeDir	make new directory
Path	add pathname to search path
Prompt	change DOS window prompt
Relabel	change disk name
Rename	change file name

The following is a list of recommended reading for more information on these AmigaDOS commands:

- 1) Commodore's 500, 1000, or 2000 manuals
- 2) Abacus's *AmigaDOS Inside & Out* and *AmigaDOS Quick Reference*
- 3) Computel's *AmigaDOS Reference Guide*
- 4) .info's AmigaDOS 1.3 mousepad reference card

from directory to directory, doing work here and there. As files accumulate, so do directories, and pretty soon you could have a problem keeping track of where you are in the directory structure.

AmigaDOS gives you some commands to make sense of this and simplify your work. They are Change Directory (*CD*), which changes or displays the current directory, *Path*, which tells AmigaDOS where to find program files that are not in the current directory, and *Assign*, which tells AmigaDOS to assign a logical device name to a file system directory. The last two commands let you use your programs and data files no matter where you are in the directory structure.

The *CD* command changes or displays the current directory. This command can be used by programs or within the AmigaDOS CLI or Shell to change from one directory to another. All file names are relative to the current directory, so files in the current directory can be specified by name only, without giving the entire path.

The *Path* command tells AmigaDOS where to search for a program file that isn't in the current directory. By defining a command path, you can use a program or an AmigaDOS command no matter what the current directory is. Because you'll always want AmigaDOS to know where you have stored your programs, data, script, and AmigaDOS command files, you should include a *Path* command in your Startup-Sequence.

The *Assign* command assigns an AmigaDOS directory a logical device name. It is most useful as a tool that will allow you to gain quick access to your files. For example, instead of typing the following at any CLI/Shell prompt to load *WordPerfect*:

```
DH1:Wordprocessing/WP/WP
```

I can type this instead:

```
WP:WP
```

This is accomplished by assigning WP: to DH1:Wordprocessing/WP using the *Assign* command. If I had added the directory to my path with the command:

```
Path DH1:Wordprocessing/WP ADD
```

I could just give the command 'WP', and AmigaDOS would search the list of directories in the path, and find the program.

Using both the *Path* and *Assign* commands can make accessing your files quicker and easier. It's certainly better than thumbing through each subdirectory searching for a file. So using these com-

mands in your Startup-Sequence and in script files will make your life much easier. Also, you will find that most commercial products come with script files that help you take advantage of the power of *Path* and *Assign*.

AmigaDOS Files

The overwhelming number of files you can place on a hard disk means that you'll probably spend much less time swapping diskettes, but a lot more time searching for files, deleting files, moving files, copying files to other disks, and doing disk house-keeping. The following are tips on how you can manage your files easily.

Naming Files

Consistency in naming your files lets you manage them more easily. For example, if you use the extension '.wp' for all your WordPerfect files (for example, 'Letter-Home.wp'), you can display the names of all such files by typing 'Dir #?.wp'.

Although AmigaDOS does not require the use of extensions, this can be a handy feature for making files easier to track down. You can use file notes as described below, but extensions take up less disk space. Table 2.4 lists some ideas you can use for file extensions. These are just

examples. There are many more you can create yourself to make file management easier.

Handling Files

You can make a file read-only with the *Protect* command under AmigaDOS 1.3. Once you've done this the file can't be changed or deleted until the read-only attribute is turned off. One accidental change or deletion could make you wish you had protected your files this way. (See Chris Zamara's article in this issue on AmigaDOS Scripts for more info on protection bits.)

Files can be copied using the AmigaDOS *Copy* command. You can use it to copy files between directories or to copy entire directories. Without special software, these commands are also the only way to back up a hard disk since *Diskcopy* will not work.

If you are moving files to a new directory that does not exist, *Copy* will create it automatically (AmigaDOS 1.3 and higher). This lets you quickly copy files to a new directory. If you need to delete the files from their original directory, you must do so manually or by using some special disk utility.

You can examine the files or directories on your disk using the *Dir* and *List* commands. These are provided so that you can examine the contents of your diskette.

The *Dir* command (Directory) lists files and directories on the disk. It only shows the file and directory names, though it has some interesting options. (Check these out in one of the AmigaDOS books listed.)

The *List* command gives you the same information plus a little bit more. It provides information about the file or directories: protection bit settings, file notes, and creation dates. It also provides a file's size in bytes, the total number of files and directories, and the number of disk blocks used by all the above.

The *Filenote* command lets you add little notes to your AmigaDOS files and directories. These notes appear when you use the *List* command. They can help you keep track of what a directory contains or to what major application program a support file belongs to.

Next month we will take a look at how you can better manage your hard disks data by backing up your hard disk and maintaining the files that are on it.



Table 2.4
Sample file extensions
you can use.

Extension	Meaning
.ASC	ASCII text file
.BAK	backup of another file
.BAS	BASIC program file
.BAT	AmigaDOS Script or batch file
.C	C program source file
.EXE	executable program file
.PIC	picture file
.WP	WordPerfect text file
.TXT	Text file (with line feeds after every line)

AMIGADOS SCRIPTS AND ICONX

A Friendly Front-End For Your DOS Scripts

by Chris Zamara

If you're not the type to grind out a C program to solve a specific problem, or if you just don't feel like compiling, you can still accomplish some file-oriented tasks using AmigaDOS scripts. Scripts are sort of half-way between simple CLI commands and real programs. To make these pseudo-programs more convenient for others to use (and to lend them an air of legitimacy besides), you can hook them up to an icon on the Workbench, ready to be double-clicked like any other program.

Some kinds of routine tasks - things that could be performed by typing a number of CLI commands - can be automated by creating a script that can be executed whenever needed. An example of a script is one you may be familiar with: the "Startup-Sequence"

that gets executed when the system boots up. Other scripts that you write can be executed through the use of the CLI *Execute* command, or by setting a special "protection" bit in the file, and calling the script from the AmigaDOS 1.3 Shell just like a normal command. Some general purpose scripts are provided in the "s" directory on the standard Workbench 1.3 disk, and are designed to be used as commands in this way. In this article, we'll also explain another means of launching scripts: through an icon, using the *IconX* command.

Scripts: Command Performance

A simple DOS script is just an ASCII file that contains a series of DOS commands. You can create such a file in a text editor (if you

have absolutely no other choice, use *Ed* from your C directory) or wordprocessor that creates ASCII files. When the script is executed by typing 'execute <scriptname>', the commands given in the file are performed, one by one. For example, a script to copy a font called "Zapot" from the "fonts" directory of a certain disk (let's call it "Demos") to the standard system font disk might look like this:

```
Echo "Copying 'Zapot' font"
```

```
Copy Demos:fonts/zapot.font fonts:
```

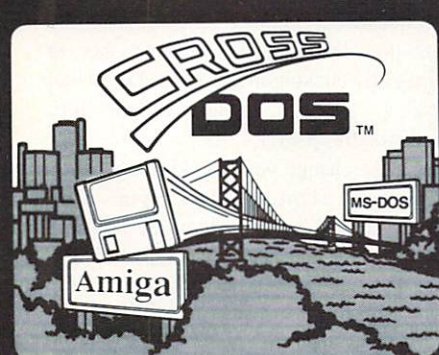
```
MakeDir fonts:zapot
```

```
Copy Demos:fonts/zapot.font fonts:zapot
```

The Echo command informs the user of the operation about to be performed, the first Copy command copies the "zapot.font" file, and the MakeDir and second Copy command copies the "zapot" font directory and its contents.

Making Decisions

Even a simple script like the one above can save the user the tedium of typing all of the commands, and such scripts are especially time saving when they're needed over and over again. An important difference between



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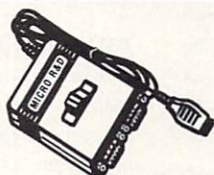


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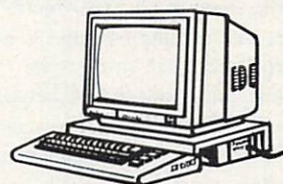
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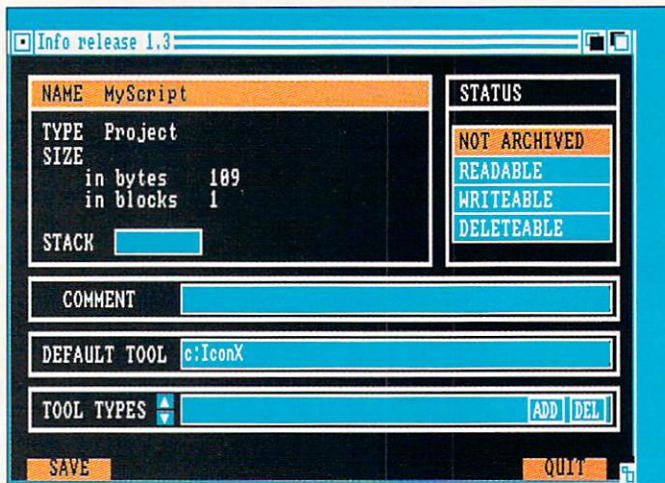
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AmigaDOS displays an *IconX* icon's info.



scripts and a simple series of commands, however, is that scripts, like other computer programs, can perform "conditional branching". A conditional branch is a form of decision-making: a test is performed, and the outcome of the test - which can be either true or false - determines what happens next. An example of conditional branching could be applied to the above font-copying script: there's no need to copy the font if the user already has it installed. Let's check for the existence of the font before doing the copy:

```
IF NOT EXISTS fonts:zapot.font
  Echo "Copying 'Zapot' font"
  Copy Demos:fonts/zapot.font fonts:
  MakeDir fonts:zapot
  Copy Demos:fonts/zapot.fonts:zapot
ENDIF
```

The commands IF and ENDIF are special DOS commands that only work when used in a script. The IF command can perform different comparisons and checks; when used with the special EXISTS keyword it checks if the given file exists or not. The "NOT" keyword reverses the test; the outcome is true if the given file - the font, in this case - does *not* exist. Any commands that lie between the IF command and the ENDIF are executed if the condition tested in the IF command is true.

Installation procedures such as the font copying script are good uses of DOS scripts. Installing a program often involves copying files, making directories, and displaying information to the user. These are all tasks easily taken on by DOS scripts. We won't go into each of the DOS commands in this article; you already have that documentation, and the commands themselves will help you out if you type the command followed by a question mark. We're here to discuss DOS scripts,

and specifically, how to run a script from an icon; it's time to move on. (If it seems like we're moving along faster than a 68030 on amphetamines, it's only because there's a lot to cover, and we understand that *.info* readers are pretty fast learners.)

Automatic Script Execution

The Shell in Workbench 1.3 gives you a convenient way to execute a script file: you can make it work just like a normal CLI command. If a script file's "s" protection bit is set, and the file is in your command path, just typing its name from the AmigaDOS Shell (an ordinary CLI won't do) will automatically execute it. This is especially useful for frequently-used scripts, and means that you don't have to worry whether a given command is implemented as a script or as a real program. To add the "s" protection bit in a script file, use the "protect" command like this:

```
protect <scriptname> s add
```

Attaching An Icon

You've written a glorious DOS script that will set everything up just so; copying files, performing logical assigns, and finally running your killer demo program. Unfortunately, in order to use the script, the user has to execute it by typing its name from the CLI... kind of detracts from the glory a little, doesn't it? On the other hand, a big icon, smack dab in the middle of the disk's Workbench window, just begs to be clicked on. Get the icon to run your script!

To run a script from an icon, you have to use a *project* icon that actually runs the program called *IconX*. *IconX* will then execute the script. In the Workbench 1.3 release,

IconX is provided along with the other commands in the C directory on the Workbench disk. A project icon is usually associated with the project produced by a particular application; a picture created with *Deluxe Paint*, for example, is a project. Double-clicking on the icon for such a picture will run *Deluxe Paint*, then automatically load in the picture itself. Project icons are supported in this way by most Amiga programs. The program that gets run when you double-click a project icon is called the *default tool*, and can be set in the icon with the Workbench "Info" facility. The default tool for your script-running icon will be "c:IconX".

The simplest way to create a project icon for a script is to write the script using the *Notepad* text editor in the Utilities drawer on the standard Workbench disk, and save it using the name of your choice. The resulting file will use *Notepad*'s standard "document" icon, which will do nicely for a script file (artistic revisions can be done using *IconEd*, if you wish). As-is, the project icon will have *Notepad* as its default tool - this has to be changed.

Click on the icon, *just once*, then select "Info" from the Workbench's Project menu. The requester that comes up will show the default tool as *Notepad*. Change this to "c:IconX" by clicking in the string gadget and editing it. (See the picture of the Info requester on this page.)

The other change you should make in the Info requester is in the "tool types". Tool types are special instructions to the tool that will be loading this project. In this case, the tool types tell *Notepad* about the size of the window, the font used, etc. Since the project isn't being loaded by *Notepad* any more, delete all the tool types by clicking on the DEL gadget until there are none left.

Making 'QUICKNOTEPAD'

Let's try a useful example. Suppose you are always using *Notepad* to generate scripts and other text files. *Notepad* handles all kinds of fonts, and spends some time looking for all available fonts when it first comes up. If you're always using the default font, there's no point in waiting for *Notepad* to go through the entire fonts directory - a lengthy process - every time you run it. Let's set up a special icon that will assign the fonts directory to RAM: (where there are presumably no fonts), then run *Notepad*, and then assign fonts back to the standard system fonts directory after *Notepad* has exited. (This will have the side

effect of making your standard fonts unavailable while you're using *Notepad*, but as long as you close *Notepad* when you're finished with it, that shouldn't be too much of a problem.) The script is this simple:

```
Echo "Assigning fonts: to ram:..."
Assign fonts: ram:
Echo "Running Notepad..."
sys:utilities\notepad
Echo "Re-assigning fonts:..."
Assign fonts: sys:fonts"
```

From *Notepad*, save the script to a convenient place using the name "QuickNotePad". From the Workbench, open the disk containing the icon, click on the icon and select "Info" from the Workbench Project menu. Edit the default tool to read "c:\IconX", delete all the tool types, and click SAVE on the requester.

Now test your icon by double-clicking it. A window, titled "IconX", opens up and displays the messages in the Echo commands. *Notepad* comes up, but doesn't waste any time looking for fonts! Close *Notepad*, and the script continues, reassigning the fonts and finally closing the IconX window. Your new

icon works just like a special program, but you didn't have to come anywhere near a C compiler or an assembler.

ICONX Tool Types

Once you've set up an icon-driven script like this, there are some enhancements you can make to polish it up a little. The "IconX" window that opens up would be more useful if it had a different title, and the window size and position might not be suitable for a given script. You can specify the position, size, and title of the window used by IconX by specifying a WINDOW tool type. To add a tool type, click on the ADD gadget and type into the string gadget. Here's an example of a WINDOW specification you could add:

```
WINDOW=CON:20/10/600/80/Run
```

Notepad without looking for fonts
This tool type specifies a window 20 pixels from the left edge, 10 pixels from the top, 600 pixels wide and 80 pixels high, with the text "Run Notepad without looking for fonts" in the title.

Another IconX tool type that can be useful

is "DELAY". Delay specifies how long the window should remain open after the script has completed, allowing the user to take a look at the messages before they disappear. The delay tool type takes a value that specifies the amount of time to delay - every second adds another 50 to the delay value. For a five-second delay, you would add the following tool type: DELAY = 250

More Script Fun

To learn more about the kinds of things you can do with scripts, stay tuned to *.info Technical Support*. We haven't yet touched on some of the more useful capabilities of scripts, like passing arguments - this will make a good topic for a future article. In the meantime, look at some examples of DOS scripts: study the Startup-Sequence, and see if the install programs on some of your commercial software disks use scripts to do the job. Not only is script-writing a useful skill, it's good experience at programming in general.



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RAD:ICAL IDEAS

by Michal Todorovic

Since the WorkBench 1.3 release, every Amiga user has access to a storage device called the RAD: disk. The RAD: disk is somewhat similar to the familiar RAM: disk that has been with us since the Amiga was introduced. Both use the Amiga's internal memory to simulate a storage device, making them the fastest type of storage devices available for the Amiga. Both have the same shortcomings: when the Amiga is turned off, all the data in both the RAM: and RAD: disks disappear. The RAD: disk is even somewhat more limited than the RAM: disk. While the RAM: disk sizes itself dynamically to the amount of data it contains, the RAD: disk occupies a pre-set amount of memory. So, what's so special about the RAD: disk? In a word, it is *recoverable*. After a warm reboot (rebooting without turning off the computer), and even most crashes, the RAD: disk will survive, preserving its contents, while the RAM: disk will lose all of its data.

Who Can Use The RAD: Disk?

Anyone who has WorkBench 1.3 can use the RAD: disk. However, the usefulness of it is directly proportional to the amount of memory you have in your system. Although you can set up a RAD: disk on a 512K system, it can only be a small one, and will further cramp an already limited amount of resources. Only with a full megabyte of memory does the RAD: disk become practical. At this level you could use it to store frequently accessed data such as the includes from a compiler, or you could create a small RAD: disk to boot from (Kickstart version 1.3 lets you do this) if you don't own an auto-booting hard-drive.

With more than two megabytes of memory, you can create a RAD: disk that is exactly the size of a floppy disk; as a result, a disk copy can be done between a floppy and a RAD: disk (which is much faster than simply copying all the data file by file). You could keep the entire WorkBench boot disk in memory, and boot from it! Although some time would initially be spent setting everything up, it would greatly speed up the process of reboot-

ing the computer, and make access to everything on the RAD: disk virtually instantaneous.

Oh No! Not The CLI!

Yes, there had to be a catch. In order to use the RAD: disk, you have to set everything up from the CLI. You even have to edit the dreaded mountlist! But not all is lost; the RAD: disk is actually rather easy to set up and use - a sample MountList is included in the devs: directory of every WorkBench 1.3 disk. All anyone has to do is slightly modify the RAD: entry to suit their specific needs. By loading the mountlist into an editor that can save ASCII files, you can customize the RAD: disk to your particular requirements. Here is what you can expect to see in the example RAD: disk entry:

```
RAD: Device = ramdrive.device
Unit = 0
Flags = 0
Surfaces = 2
BlocksPerTrack = 11
Reserved = 2
Interleave = 0
LowCyl = 0 ; HighCyl = 21
Buffers = 5
BufMemType = 1
#
```

In most cases all you would have to do is change the HighCyl number to something else; all the other entries in the mountlist can be considered "magic numbers." Also make sure that the HighCyl value is an odd value. After saving the mountlist back to the disk (remember to only use backups of the WorkBench disk; *never* use the original), open a shell or a CLI. Type in:

Mount RAD:

This tells the Amiga that you want to use the RAD: disk. But, just like any other disk drive, you have to format the RAD: disk before you can use it. From the CLI you might type:

Format DRIVE RAD: NAME RadDisk

The RAD: disk will format much quicker than a floppy disk or a hard-drive. Now you have access to your RAD: disk! Use it just

like any other drive (it has an icon). If you reboot the machine, the RAD: disk should still be there after the reboot without you having to mount and re-format it.

Radical Start Up Sequences

Now let's make the RAD: disk a more permanent part of an Amiga environment. Let's edit a startup-sequence to automatically mount the RAD: disk only if it is not already there. Here's an example of how to copy the entire Workbench disk to RAD:, and then assign all the system directories to it.

```
C:SetPatch >NIL: r ; Patch the system.
; NOTE: only use the r option
; if you have the 1 meg Agnus.
; Make sure to use a small r
SYS:System/FastMemFirst
C:Failat 30
assign >NIL: RAD: exists ; Is RAD: present?
if warn
echo "Mounting the RAD: Disk."
mount RAD:
if not exists RAD:c
; for RAD:c that is in the RAD: disk.
/diskcopy DF0: to RAD: name "RadBench"
endif
endif
RAD:c/Failat 10

RAD:c/echo "Transferring control to RAD:"
RAD:c/assign c: RAD:C
C:assign Devs: RAD:Devs
C:assign L: RAD:L
C:assign Libs: RAD:Libs
C:assign System RAD:System
C:assign S: RAD:S
C:assign Fonts: RAD:Fonts
C:assign Sys: RAD:
C:Echo "Done!"
```

To boot from the RAD: disk, you would remove the disk from df0: (or place a non-booting disk in the drive so it won't click!) and reboot the machine. (This will only work with KickStart version 1.3 and up - older revisions boot from floppy only.)

Customizing The Mountlist

There are several options you can add to the mountlist in order to customize the RAD: disk. For instance, if you wanted the computer to boot from RAD: regardless of whether there is a floppy disk in DF0:, then you should add this line somewhere in the MountList: BootPri = 128

This forces the Amiga to boot from the RAD:

disk regardless of what other devices may be attached to the Amiga at that time.

The following three lines need to be added if you wish RAD: to work under the Fast File System. However, be advised you can't boot from a RAD: disk formatted under the Fast File System.

```
FileSystem = L:FastFileSystem
GlobVec = -1
BootPri = -129
DosType = 0x444F5301
```

To make the RAD: disk exactly the same size of a floppy disk so a disk copy can be done between them, set the HighCyl value to 79 (the LowCyl value should always be 0).

Nuking The RAD: Disk

There are two ways to get rid of the RAD: disk: turn off the machine (for at least a few seconds), or at the CLI prompt, type: RemRad Which frees most of the memory associated with the RAD: Disk. The rest of the memory is freed after a warm reboot. ☆

PROGRAMMING FUNDAMENTALS

Part 2 - Expressions, Functions, and Operators

by Nick Sullivan

Last month we looked at some of the most fundamental concepts used in programming. We saw that programs consist largely of *statements*, each consisting of a *command* - which is like the verb in an English sentence - and an optional "phrase" part containing the data the command requires. We briefly examined the very important kind of statement called an *assignment statement*, in which a special symbol (usually either "=" or "!=") takes the place of a command keyword; we saw that the effect of an assignment statement is to associate a name (such as "A") with a value (such as "5"), and that using the name (a *variable*) instead of the value (a *literal*) gives us the

power of generality. Finally, we noted the existence of two elementary *data types*: numeric and string.

In this article we will look at some of the ways in which values of both types can be manipulated in *expressions*, and we'll introduce an easy way for you to explore expressions on your own.

Expressions

In programming, as in mathematics, an *expression* is a combination of symbols from which a value can be derived. For instance, "2" is an expression; we can determine without much effort that its value is two. Other expressions include:

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```

2 + 3
1.62 * Miles
(F - 32) * 5 / 9

```

These are all simple numeric expressions. They are made up of literal values like "2" and "1.62", variables like "Miles" and "F", and *operators* such as the plus sign for addition, the asterisk for multiplication, the slash for division, and the parentheses for grouping. Most operators are *binary*, which means that they work on two values, as the "*" in the second example works on both "1.62" and "Miles". The values governed by a given operator are called its *operands*.

Many computer languages would accept the expressions above exactly as they are written, but some have different requirements. Some languages might not allow upper case letters in variable names; others might allow *only* upper case letters. Some languages use operator keywords, like ADD, SUB, MUL and DIV, instead of the symbols used in the examples. A few languages, like Forth and PostScript, require that expressions be given in the less familiar form known as *postfix* or *reverse Polish* notation, in which each operator comes after, rather than between, its operands. (Hewlett-Packard calculators have historically used reverse Polish notation.)

More significant than these superficial differences are the capabilities offered by various languages for creating expressions that go beyond basic arithmetic. Many, though far from all, languages offer exponentiation and the calculation of the remainder after division as elementary operations. Many languages offer special operators for string values. In ARexx, for example, the expression:

```
"horse" || "feathers"
```

uses "||", the ARexx *concatenation* operator, to combine two operands into the single string "horsefeathers".

There are a couple of advantages to using special symbols, like "||" and the rest, for operators. They are concise, which helps keep complex expressions down to a manageable size; and they are visually quite distinct from their operands, which makes the expressions more readable. Both the eye and the memory can overdose on squiggles, though, however meaningful they may be individually. (For a real challenge in reading programming hieroglyphics, just try to interpret an APL listing - almost every operator requires a special cryptic symbol!) Most language designers have therefore tried to keep the repertoire of symbolic operators rather small, preferring

instead to expand the capabilities of expressions by means of *functions*.

For instance, suppose we want to implement an operation that accepts two numeric operands, and gives back the larger of the two. We might choose to create an operator using some arbitrary combination of symbols, say "\$@". Thus the expression "3 \$@ 5" would have the value five. Alternatively, we might decide that clarity would best be served by creating a *built-in function*, with notation like this: MAX(3,5). For the designer of a programming language, the difference between these two ways of expressing a maximum-value operation may be profound, but in coding an expression there may not be a great deal to choose between, say:

```
A = (Profits $@ Losses) / 12
```

and:

```
A = MAX(Profits, Losses) / 12
```

In most languages, this particular operation, along with many others for which no conventional operator symbol exists, *would* be given as a function, generally with exactly the syntax used above. The syntax consists of an *identifier* (here "MAX"), just like the identifiers used as variable names, followed by a number of comma-separated *function arguments* in parentheses. Different functions expect a different number of arguments; some take no arguments at all (though in most languages the parentheses are still required). Some languages allow functions with a variable number of arguments, the automatic substitution of default values for missing arguments, and other variations.

The distinction between a function like MAX() and an operator like "\$@" can be important: for example, operators are usually more efficient, and functions are more flexible. Most languages allow the programmer to create new functions for new purposes; few languages allow the creation of new operators. For now, though, just note this fundamental similarity: both functions and operators provide a mechanism for transforming a number of inputs into a single output value. Thus a function call, or a subexpression comprising an operator and its operands, can be substituted into an expression in the place of a simple value; what is more, such substitutions can be carried on repeatedly without theoretical limit to yield expressions of ever-increasing complexity.

For instance, the assignment statement below could be part of a routine to center a piece of text on a display. The programmer knows that the display is 300 pixels wide and

that the string is 180 pixels wide (it consists of 18 characters in a fixed-width font with 10 pixels per character). That leaves 120 pixels unused for margins, half on each side. A left margin variable could thus be set up (in many languages) with:

```
lmargin = 60
```

Nothing could be more concise and efficient. But having got this far, the programmer may want to go a little further still, and try for generality. Perhaps the routine containing this line can be made to center *any* text on *any* display. As a start, let's replace the simple value 60 with a more complex expression that reflects the reasoning in the paragraph above:

```
lmargin = (300 - 18 * 10) / 2
```

Finally, suppose we have variables for the text, the display width, and the current font, and that there are functions available to find the length of a string in characters, and the width of a font character in pixels. We can now transform the above into an equivalent, but much more general expression, like:

```
lmargin = (disp_width - length(message) *
charwidth(font)) / 2
```

A Laboratory For Expressions

Expressions, operators, function calls, variables and assignment statements comprise most of the basic equipment you need to formulate ideas in programming languages. If you have installed the ARexx language on your Amiga (if you haven't, here's yet another reason for doing so - see your dealer!), you have a ready-to-hand laboratory for experimenting with the concepts I've discussed in this article. Try typing these lines into a CLI window, and see what happens:

```

rx "say 12 + 3"
rx "say (300 - length('Greetings Earth
man')*10)/2"
rx "say max(14,length('fifteen letters'))"
rx "say random(1,100)"
rx "say left('hexadecimal',3)"

```

Those are just to get you started. Browse through the function descriptions in Chapter 6 of the ARexx manual, skipping anything that seems too weird or obscure, and experiment on your own.

In the next issue, we'll look at another fundamental programming concept - *control statements* - and we'll finally get down to some serious business with a real, albeit short, ARexx program.



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Featured Disk

WB33:Graphics - The disk contains C-light - The easiest to use raytracing we have seen to date. This one starts our life as a full featured commercial product similar to Sculpt3d. Now it has been released to the PD, our gain! Raytracing programs can generate stunning highly reflective surfaces of realist objects. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Tiller. Great video scrolling, wipes, special effects, and more...

New Disks

FD36:Games - Including Euchre - a wonderful card game, HeadGame - a sort of headless (ha) shoot'em up, Simpson - a shoot'em up loosely based on the tv show, Streets&Alleys - a good solitary card game, taxman - an math educational game.

FD37a & b:Tactical Games - Empire (2.2w) This game comes highly recommended. Now with a full featured graphic front end Empire is a rich simulation of international politics, economics and war, which is played over a period of a few of months by 2 or more people. Players can run the current world from the normal Amiga keyboard, or via a modem at 300 to 2400 baud. Counts as two disks.

FD38:Games - Includes TinyBall - This tiny baseball game is very big in play action, CribbageMaster - a incredible cribbage program, Spades - a well done card game, ChineseCheckers - A computer version of this classic, Puz - a slide piece puzzle game and construction set.

FD39a & b:Tobias Star Trek - This is a new completely different version of Star Trek than that found on FD12. This one was created by the german author Tobias. The game is in english, the instruction are currently in german (looking for a translation). Excellent!!! Counts as two disks. Requires 512k memory a 500, 2000 or Pal Amiga.

FD40:Arcade - MiddleEast - a timely arcade game of death and destruction set in Iraq, BackToTheFuture - a very playable demo version of this soon to be released commercial game, City - a missile command clone.

WB43:Business - This disk contains AnalyCalc - probably the most powerful spreadsheet program on the Amiga.

WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads, ...), people, and transportation.

WB50:Animation - Seven of the best european style animations or "Demos", including scientific 451, subway (a U.S. entrant, also our favorite), sunrise, thrsdemo, night, waves, and wooo.

WB54:Printing - This disk contains several routines to help with the chore of printing. Including Gothic - Finally a Banner printer, PrintStudio - a well implemented all-purpose printer utility with a very comfortable graphic interface and many advanced features, Lia - with ease, print ASCII files to a PostScript printer, and many more.

WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disk with this one. RoadRoute - find the quickest route from one city to another, highway description included, Dairy - a diary program like "Doug Howard M.D.", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications, and more.

WB56:General Utilities - This disk contains FullView, a great graphic display, text viewer, and printer (see Amiga World, Oct. 90, pg. 116), plus many more.

WB57:Animation - This disk has several "Demo" style animations, including, Blitter, Loli, Sun5, vertigo, vortex, and xenomorph.

DD69:Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFRag but greatly improved, Selector - put menus on your workbench screen.

DD70:Game construction/parser tool - ADL (which stands for "Adventure Definition Language") is a programming language and run-time environment designed for the convenient implementation of Adventure-like text games.

Other Great Disks

FD5: Tactical Games - BullRun - A civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very hard forming.

FD6: GAMES - This disk is chocked full of games including: Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: PACMAN - This disk contains several pacman type games including: PacMan87, MazMan, and Zone.

FD9: Moria - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A dungeon adventure game. Considered a must have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints, and more, also this disk, Hball - an arknoidebreak out type game, Tris - a Qix type clone.

FD16: Strategy Games - Includes Diplomacy and Empros, both great conquer and rule multiplayer games similar in concept to Simcity and Populas. Also includes backbox, hearts, and others.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72): A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD24:Strategy Games and Others - Includes Dicey, a yathzee type clone, MM a master mind type clone, Flipper an orthello type clone, China a great implementation of Shangi, CircuitWars a challenging game based on electronics, and Etrain a computer based model train set construction set for the enthusiast.

FD26:Arcade Games - Marble, slide, truly this is a commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants, a small version of the arcade game of the same name, also SuperBreakout a pong/arknoide type game.

FD29: Shoot'em up's - WWII - your the pilot of a world war II plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrinth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.

FD32: Game Cheats and Flight Simulator - Includes an instrument flight simulator for a DC10. Also Cheats and Hints for the following games, Earl Weaver, Falcon, It C.I.T.D., SimCity, SpaceAce, Space Quest, Test Drive hd install, and Extract a program that gets all of the text from within a game (or other) which helps cheating easier. Also several football teams (team files).

FD33: Arcade Games - Freddy a mario brothers type of game, Gerbils a target practice game, PipeLine a german interpretation of Pipe Dreams, from a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.

FD35 Omega (v 1.3) - A new dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better than all previous versions. Play time several weeks or months.

WB4:Telecommunication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) - Handshake is a Full featured VT52/100/102/220 terminal emulator.

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WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A real must have!

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WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: WordText Processors - This disk contains the best editors includes, TextPlus (2.2a) full featured word processor Dme(v1.35) a great programmers editor with strong macro features, TexEd(v2.8) an enhanced Emacs type editor, and a spell checker.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BarSurf2 produces bar charts of objects one could turn on a lathe. Can also map ifr image files onto any surface that it can draw. Now compatible with most 3D packages and VScreen makes a virtual screen anywhere, great for DTP.

WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any enter user global coordinate. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, KwikBackup - two well done utilities to help with harddisk backups, FileMast - a binary file editor, LabelPrinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it!

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Moad (1.26) a well done new release of this PD cad program, now comes with predrawn common circuit components for insertion into schematics.

WB36:Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.

WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Escher type pictures.

WB39: Music - Intuitracker is a german offer of an exquisitely well done program that allows you to play Amiga music as if from a CD like SoundTracker but better. Very powerful easy to use program.

WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your Amiga. Similar to SoundTracker but better. Very powerful easy to use program.

DD47: Pascal - This disk contains everything needed to program in pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zcc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.

DD51: Circuit Analysis - Aspic (2.3) A full featured program for electric circuit analysis.

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10 ☐ Graphics/Animation
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24 ☐ Video
25 ☐ Graphics/Animation
26 ☐ Sound/Music
27 ☐ Productivity
28 ☐ On-line Services
29 ☐ UNIX
30 ☐ Entertainment
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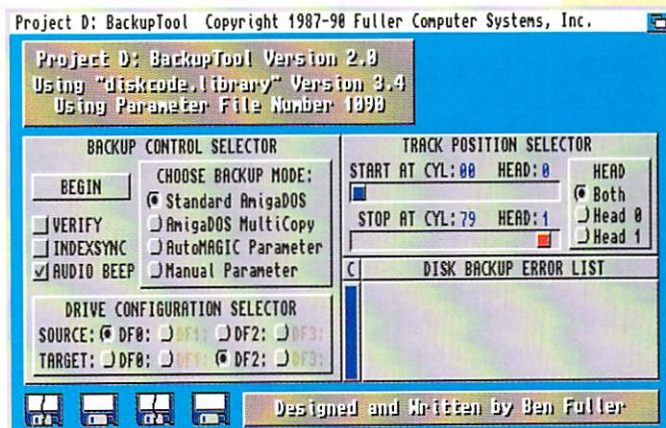
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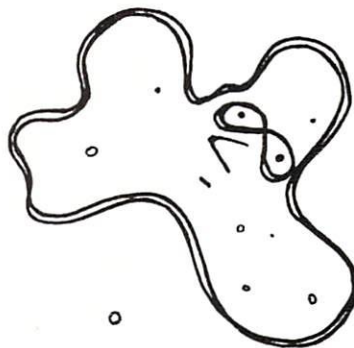
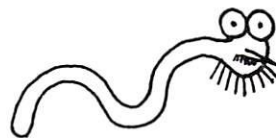
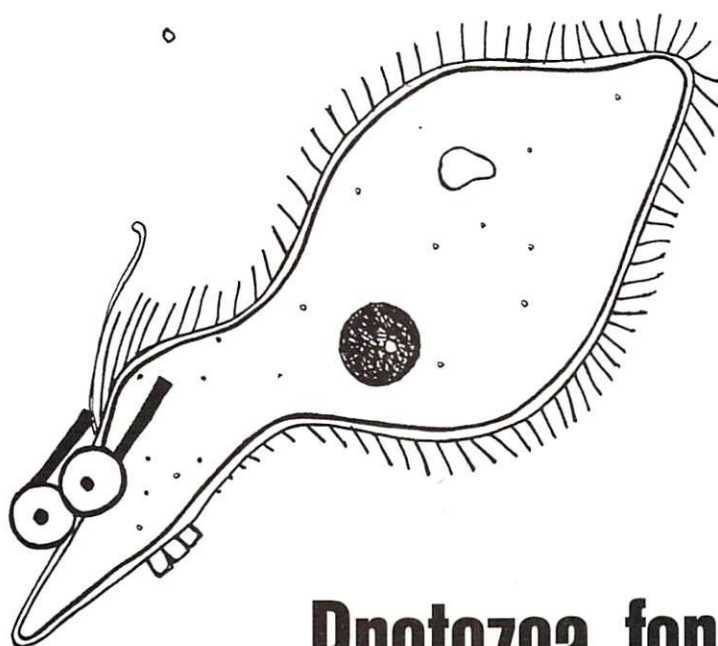


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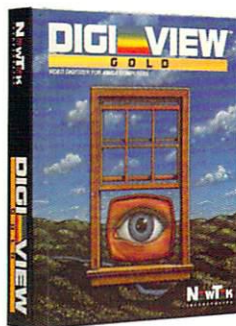
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